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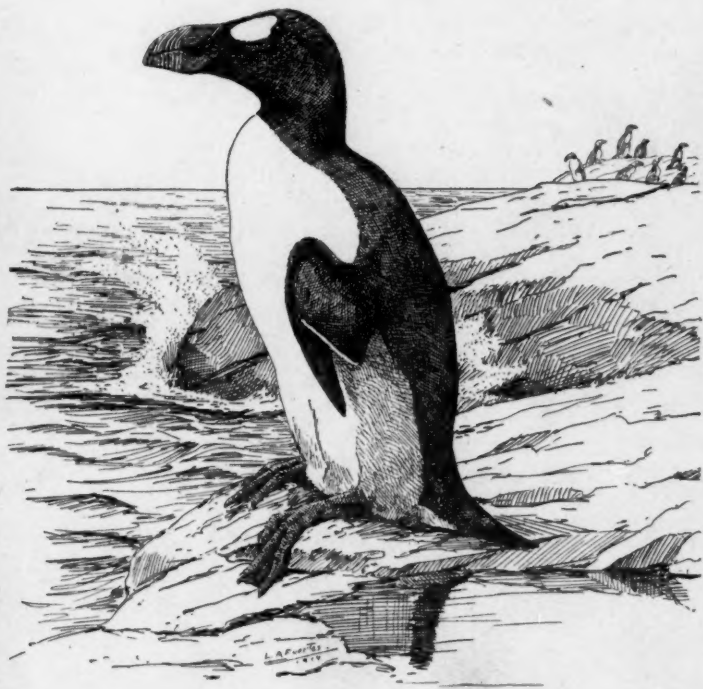
# The Auk

A Quarterly Journal of Ornithology

Vol. XXXIII

JULY, 1916

No. 3



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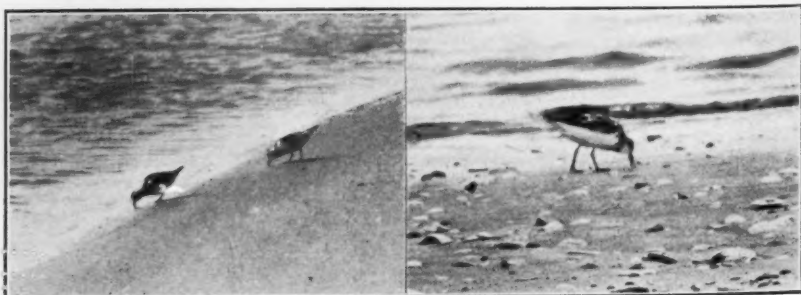
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1. BLIND AND DECOYS ON OUTER BEACH.

2. SANDERLING TRACKS.

3, 4. SANDERLINGS FEEDING.



# THE AUK:

A QUARTERLY JOURNAL OF  
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## FIELD NOTES ON SOME LONG ISLAND SHORE BIRDS.

BY JOHN TREADWELL NICHOLS AND FRANCIS HARPER.

### *Plates VII-XIII.*

LONG ISLAND, with its abundant and varied avifauna, has long been one of the most thoroughly canvassed fields for ornithological work in America. Naturally the water birds hold first place among its attractions. Of the Limicolæ alone, nearly fifty species have been recorded, including a considerable number of European forms and others of rare or accidental occurrence. Unfortunately, bird students in general are rather neglectful of the shore birds, and allow most of the records to be made by gunners or collectors, who—at least as far as Long Island is concerned—have seldom done more than publish migration data or the occurrence of unusual forms. As a consequence, Giraud's work<sup>1</sup> of seventy-two years ago, though far from exhaustive, still furnishes the fullest, and in some respects the best, account that has been published of the habits of most of our shore birds.<sup>2</sup>

Since Giraud's time important changes have taken place in the limicoline life of Long Island. The Dowitcher is no longer present in the abundance of former days. The Robin Snipe, well known to

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<sup>1</sup> J. P. Giraud, Jr. *The Birds of Long Island*. New York, 1844.

<sup>2</sup> Mr. George H. Mackay's excellent studies of a few species on the Massachusetts coast, published in 'The Auk' over twenty years ago, must not be overlooked. See Vol. VIII, 1891, 17-24 (Golden Plover); IX, 16-21 (Eskimo Curlew); IX, 143-152 (Black-bellied Plover); IX, 294-296 (Red Phalarope); IX, 345-352 (Hudsonian Curlew); X, 25-35 (Knot).

the old-time gunners, has been so decimated that now each occurrence is worthy of note. The Eskimo Curlew is a bird of the island's past, and the Golden Plover bids fair to share its fate. The merest remnant of Bartramian Sandpipers yet keeps a foothold at the extreme eastern end of the island. Certain other species, however, have fared much better, and probably a few have not shown any considerable decrease in the past quarter of a century. Large flocks of Least and Semipalmated Sandpipers are still common sights, and even so persistently sought a species as the Greater Yellowlegs has survived in goodly numbers. Apparently the recent agitation for wild-life conservation has already begun to have an effect toward restoring the numbers of our shore birds.

For a number of seasons past we have been able to give considerable attention to the Limicolæ occurring on the marshes and beaches along the south side of Long Island. Most of these are migrants, which generally hurry past, sometimes flying so high in the air as to escape notice. When they do alight to feed on some favorable spot, they are often extremely wary and difficult of approach; yet if one adopts the regular gunner's method, building a blind of bushes for himself, and luring the birds with a flock of decoys planted on sticks, he may find that not only do a surprising number of visitors come, but that some of them are very tame.

The type of blind varies with the nature of the ground and the materials available. On the beach one may scoop out a pit in the sand and build up its ramparts with stranded boxes, logs, or sticks (Plate VII). At a pool on the salt marshes the high-tide bushes (*Iva oraria*), whose green leaves match the color of the surrounding marsh-grass (*Spartina*), make the best sort of blind (Plate IX). They are stuck upright into the soft ground in the form of a more or less complete circle, within which the hunter sits. Bayberry bushes (*Myrica carolinensis*) furnish a closer cover, but are more conspicuous, and therefore less suitable, than the high-tide bushes. Drifted eel-grass and dead stems of marsh-grass are useful for filling gaps in a scanty blind. Occasionally a gunner may sit behind a mere screen of cloth, but a photographer requires a less conspicuous affair and better concealment for work at closer range. The decoys, which are made of tin, wood, or even cardboard, are known on Long Island as 'stool.' The arrangement of the stool

and the blind for the most successful results, especially when photography is the object, calls for considerable experience and skill on the part of the hunter.

The snipe fly up the wind toward the stool, often setting their wings and sailing in first from one angle, then from another. As they approach, their characteristic whistles add to the thrill of the moment. A skillful imitation of these will often bring them in more surely, or turn a passing bird which otherwise might have merely whistled to the stool. The critical moment comes just before they are ready to alight; when actually among the artificial birds, some individuals (especially of the smaller species) seem to take their security for granted. We have very frequently planted our stool in a foot or more of water, where incoming birds could not judge the depth on account of muddiness or surface reflections. In such a case, they often flutter about from one deceiver to another, dipping their feet into the water, and becoming bewildered by their inability to find bottom (Plate XI, fig. 4). If a little mound of mud or seaweed has been prepared to project above the surface near the decoys, a bird will sometimes alight upon it, giving the camera-hunter a shot that may amply repay him for long days of devotion to the difficult but fascinating sport of snipe photography.

May and August are the months in which these birds occur in greatest numbers. As many species are found through September, but after the first week a majority of them fall off in abundance of individuals. The influence of the weather on their southward migratory flight is frequently noticeable. Clear weather and strong northwest winds bring few birds, and those that appear do not come well to stool. At such times doubtless many birds pass by well out at sea. Protracted southerly winds, moderate southwest breezes, and cloudy or showery weather seem to furnish proper conditions for the best flights over the shores and bays. On favorable feeding grounds the birds may be found at practically any time, and their flights from one spot to another on the marshes or mud-flats may, of course, take any direction. In certain other places, however, the flight is seen to be of a truly migratory nature. For example, along the comparatively narrow channel connecting Moriches and Great South Bays, where feeding grounds are so limited as to scarcely induce the birds to alight, a large majority

of them in the fall come to stool from the eastward and leave to the westward, though usually there is also a small minority traveling in the opposite or other directions. Here the birds generally appear at about sunrise, and are most abundant early in the day.

The present paper aims to furnish an account of the migrations, haunts, social and feeding habits, call-notes, field characters, and general activities of eleven species of shore birds, as we have observed them on Long Island. The migration data have been gathered from every available source, including not only the published writings of Dutcher,<sup>1</sup> Cooke,<sup>2</sup> Braislin,<sup>3</sup> and Eaton,<sup>4</sup> but also the manuscript records of a number of other ornithologists, chiefly fellow-members of the Linnæan Society of New York. For co-operation in this and other respects we are glad to express our appreciation and indebtedness to Messrs. William Floyd, Ludlow Griscom, Arthur H. Helme, William Helmuth, Stanley V. LaDow, Roy Latham, Robert Cushman Murphy, Chas. H. Rogers, H. F. Stone, Henry Thurston, and J. A. Weber. We also have to thank Dr. Frank Overton for generously permitting the use of his photographs of the Northern Phalarope. All the other photographs were taken by the writers.

In the case of each species we have endeavored to give the earliest and latest migration dates, together with the locality and the observer's or the recorder's name wherever possible. In addition to the scientific names and the accepted English names, as given in the A. O. U. Check-List, we include a number of local names that are in more or less common use on Long Island.

**Lobipes lobatus.** NORTHERN PHALAROPE.—Uncommon transient visitant. In following its usual migration route, this phalarope seems to pass at some distance off the Long Island coast, but occasionally (and especially during stormy weather) it reaches our shores. The spring dates range from April 2, 1911 (Long Cove, Overton and Harper), to June 3, 1894 (Montauk Point, Scott); the fall dates, from August 5, 1893, to October 22, 1888 (Montauk Point, Scott).

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<sup>1</sup> Numerous records furnished for Chapman's Handbook of Birds of Eastern North America (1894) and for Eaton's Birds of New York (1910).

<sup>2</sup> Distribution and Migration of North American Shore Birds. Washington, 1910.

<sup>3</sup> A List of the Birds of Long Island, N. Y. Abstr. Proc. Linn. Soc. N. Y., Nos. 17-19, 1907.

<sup>4</sup> The Birds of New York, Part I. Albany, 1910.



1, 2. NORTHERN PHALAROPE.

3. "OXEYE" AND DOWITCHER.



1871  
1872  
1873  
1874

The presence of the species at Long Cove, on the inner side of Fire Island Beach, at so early a date in the spring, was probably accounted for by a gale that had been blowing for a day or so previously. The wind was strong out of the northwest at dawn, when we looked out from the window of a bayman's shanty and spied two small snipelike birds swimming among the ripples in an indentation of the shore several yards away. A few moments later, having hastened forth with cameras and field-glasses, we found one of the birds feeding along the outskirts of a large floating bed of eel-grass in the cove. It swam easily back and forth, sometimes clambering over a bunch of eel-grass in its way; and though we advanced in the open nearer and nearer, it appeared much more interested in securing its breakfast than in watching our motions. When pressed too closely, however, it gave a jerky, half-petulant little note, *pip*. Several times, too, it took wing for a short distance, but was readily approached again. Once, while being photographed, the bird was directly between the two observers, barely out of arm's reach (Plate VIII).

During the southward movement of shore birds in August, one occasionally finds a Northern Phalarope among the meadows along the south shore. Floating water-weed is a favorite place for the birds to alight. They walk about over it or swim across bits of open water indifferently. Most of these birds are in the dark immature plumage, and very confiding, apparently knowing nothing of man. On taking wing, they utter a chipping note suggesting somewhat that of the Sanderling. An adult bird observed on August 21 had the plumage already very gray.

On August 16, 1913, a single Northern Phalarope was observed to flutter down to the surface of a small pond-hole in the marsh back of the beach near Mastic. It sat on the water like a little duck, and presently crouched on a lump of bog, where two Oxeyes crowded beside it, there being scarcely room for all three birds. It seemed to have considerable attraction for several Oxeyes that were flying about, for they stooped to it nicely, even when it was swimming where they could not alight. Though flushed more than once, it returned always to the same vicinity. In flight its blackish upper surface, with the white stripe near the posterior edge of the wing, was striking.

On the 28th and again on the 30th of August, 1915, two birds were observed on the water-weed which carpeted a considerable portion of the surface of a shallow cove in the marsh back of the beach at Mastic. On each date it was doubtless the same two individuals, which had found a congenial spot and were lingering there. As they moved about, their manner of snapping up food reminded one of the Spotted Sandpiper.

***Macrorhamphus griseus griseus*.** DOWITCHER; DOWITCH.— Though formerly abundant, and still usually referred to as a common transient visitant, this is one of the shore birds whose numbers on Long Island have shown a very marked decrease in the last fifty years. At present it is a regular but scarcely common migrant along the south shore. The bulk of the spring migration takes place in May, extreme dates being April 19

(Seaford, R. L. Peavey) and June 12 (Eaton). The southward flight reaches Long Island as early as July 4 (Eaton), and continues as late as September 29 (Freeport, Braislin).

The Dowitcher frequents the bare tidal shoals and the muddy borders of the marshes, seeking its food usually in the shallow water or close to its edge. At present the birds are not, as a general rule, sufficiently numerous to form flocks of more than a few individuals; and frequently only a single Dowitcher is observed, either by itself or in company with other species, such as Yellowlegs, Stilt Sandpipers, Oxeyes, or Ringnecks.

In the August migration of 1913 (which was light for most species), the Dowitchers appeared in somewhat larger force than usual; four or five small, unmixed flocks were seen, which flew low and steadily, and on most occasions failed to act in accordance with their well-deserved reputation for unwary response to decoys. At about sunrise on August 17, however, a flock of seven, accompanied by a Lesser Yellowlegs, stooped beautifully at the edge of a meadow island near Mastic, alighting on a muddy point not far from the blind. The Yellowlegs, which was nearest, soon took alarm and continued its migration to the westward, whistling as it went, but the Dowitchers showed remarkable tameness, and allowed several photographs to be taken before they, too, departed.

The common note of this species is a soft, rather abrupt whistle, which usually sounds like *whew-whup*, or *whew-whup-whup*, but is subject to further variation. Its tone, though a little less shrill, is not very different from that of the Lesser Yellowlegs' whistle. Now and then a rapid series of rolling, guttural notes surprises the hearer.

Though the bodies of the Dowitcher and the Lesser Yellowlegs do not differ greatly in size, the former's bill is noticeably longer, and its legs noticeably shorter. Its stocky build, the darkness of its summer plumage, and the narrow white patch on the back, which forms a very striking mark when the bird is on the wing, are other good field characters. So also is the grayish-white posterior margin of the wing in immature birds. In its steady and well-sustained flight the Dowitcher has a peculiar appearance, for the body is inclined downward from the head toward the tail, while the long bill points earthward at a corresponding angle.

**Pisobia maculata.** PECTORAL SANDPIPER; KRIEKER; GRASS SNIPE.—An early but rare spring migrant; March 22 (Eaton) to May 30, 1913 (Freeport, Thurston). Fairly common from late July through October; the earliest fall record is July 6, 1911 (East Hampton, W. Helmuth), and the latest, November 10 (Eaton).

Though the common haunt of this species is suggested in one of its vernacular names (Grass Snipe), it is not infrequently found also on mud-flats and along the margins of marshy pools and streams. It usually travels and feeds in small bands of its own, but sometimes one or two birds are observed in a scattered flock composed chiefly of the smaller species of snipe. The Kriekers join ranks on the wing, but become more loosely organized after alighting to feed. Each bird moves slowly along, and



1. BLIND AND DECOYS ON SALT MARSHES.  
2. WHITE-RUMPED SANDPIPER. 3. PECTORAL SANDPIPER.  
4. LEAST SANDPIPERS.

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probes into the mud with a rapid drilling motion of its bill, which apparently remains closed, though the tip, at least, must be opened beneath the surface when a morsel is located. We have seen one squat in a skulking attitude on the mud behind a short cat-tail stub, when it had been annoyed by persistent stalking; and we have also seen birds wade into a little stream and swim a foot or two to the other side.

Though the Krieker is an unusually trustful snipe, it is well known, on the other hand, for its lack of response to decoys. We were especially pleased, therefore, with an experience we had at East Pond, Hicks Beach, on September 30, 1911. It was near dusk when a band of eight or ten small snipe appeared, flying low over the eastern end of the pool and heading our way. The birds swung gracefully from side to side as they came on, and having caught sight of our decoys, wheeled in over them. They had scarcely passed by before they turned and dropped in, closely bunched, at the edge of the mud-flat, 18 feet in front of us. There they stood daintily, eyeing the occupants of the scanty blind with curiosity or wonder, as it seemed, rather than with suspicion or alarm; but after some moments they took wing and departed.

The Krieker has two distinct notes — a short *kuk* or *chup*, and a hoarse, rolling whistle, *k-r-r-r-u*, *k-r-r-r-u*.

The heavy streaks on its breast end in a rather abrupt line across the body, and serve as a good field identification mark. These dark markings, however, are of protective value when the Krieker's head is erect, for the breast is then practically a part of the upper surface of the body, where dark coloring is required to render the bird inconspicuous among its surroundings.

**Pisobia fuscicollis.** WHITE-RUMPED SANDPIPER; BONAPARTE'S OXEYE; BIG OXEYE.— Rare in spring. We find only the following records, all except one within very recent years: June 10, 1882 (six, Mt. Sinai Harbor, Helme); May 21, 1910 (two, Long Beach, LaDow); May 22, 1910 (six, Freeport, Weber and Harper); May 21, 1911 (two, Oak Island, Harper); May 28, 1911 (one, Long Beach, Griscom); May 30, 1911 (five collected by J. A. Weber out of a flock of about 25 on Jamaica Bay); May 23–24, 1915 (fairly common at Gilgo Flats, Johnson, Rogers, Weber, and Harper). Fairly common fall migrant; usually present from the middle of August to the middle of October, and noted as early as July 4 (Eaton) and as late as November 4, 1912 (East Hampton, W. Helmuth).

If one looks carefully through the large mixed flocks of snipe that resort during the migrations to such favored feeding grounds as the Gilgo Flats or the Oak Island pool, he will seldom fail to discover one or more White-rumps among the others. Separate flocks of this species, consisting usually of only a few individuals, are also observed.

It feeds on the bare tidal flats, at the pools in the marshes, and on the sands of the outer beach. In common with the smaller Oxeyes, it is unsuspicious in disposition. It sometimes crouches on its tarsi when startled, and is then extremely inconspicuous on the mud. We have seen it come over stool, though ordinarily it does not respond to them.

Its flight is much like that of the Least Sandpiper; at times flocks pass by in a direct and unhurried manner, but we have noticed single birds whose flight was swift and darting.

The baymen and gunners do not usually distinguish it from the other Oxeyes, but we have occasionally heard it spoken of as Big Oxe. It can be readily identified in the field by its slightly larger size and by its white upper tail-coverts, which show conspicuously in flight. On the ground the bird stands low, and is very concealingly colored, like the Krieker, which it resembles also in build. Perhaps as diagnostic as any other characteristic is its note; this is an exceedingly sharp and squeaky, mouse-like *jeet*, which the bird utters on the wing, and which, when once learned, is unmistakable.

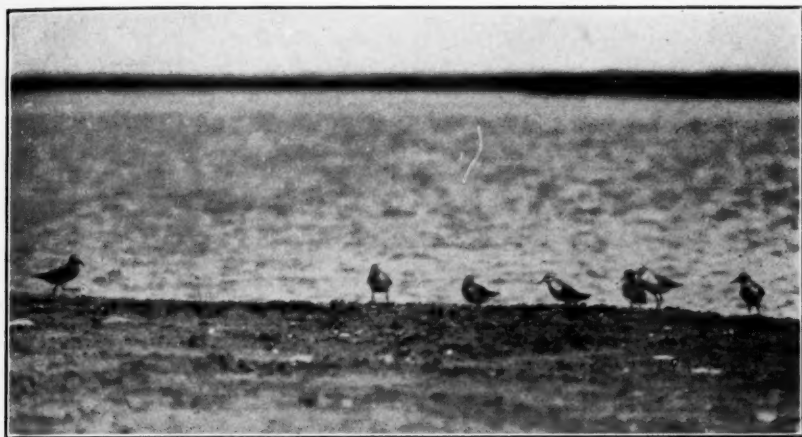
***Pisobia minutilla.*** LEAST SANDPIPER; OXEY; LITTLE OXEY. — Abundant spring and fall migrant. It is present usually throughout May and from about July 8 to September 20, preceding the Semipalmated Sandpiper by about a week, on the average, both in arriving and in departing on its migrations. It has been recorded from April 20 (Eaton) to June 12 (Orient, Latham), and from June 27 (Orient, Latham) to October 14, 1912 (East Hampton, W. Helmuth).

The Least Sandpiper sometimes occurs on the ocean beach, but is much more characteristic of the marshes and mud-flats; it is also seen commonly on floating beds of eel-grass in quiet coves and bays. It is very gregarious, and travels usually in small bands of three or four to twenty individuals, but may be seen in much greater numbers. Practically every large mixed flock of shore birds on Long Island contains Least Sandpipers; these, however, keep more or less to themselves, though feeding over the same ground with Semipalmated and White-rumped Sandpipers, Ringnecks, and others. The Oxeyes are also very apt to follow the movements of Yellowlegs without associating very closely with them.

Both the Least and the Semipalmated Sandpipers are very easily attracted to stool, but in walking about are apt to become nervous when they see a tall tin Yellowlegs towering above them. The stool are usually set out in the water, but the Oxeyes, with their short legs, prefer to alight on the bare ground, and when there is no convenient mud-bar, will often pass by without a pause.

In securing its food of minute animal life, the Least Sandpiper either picks it up from the surface of the ground, or probes for it with a drilling motion into the mud and sand, sometimes through shallow water, in which it may thrust its bill entirely out of sight. It walks about in a rather leisurely manner, though meanwhile it gleans carefully and industriously.

No more trustful snipe visits the Long Island shores; and it is not a very uncommon experience for the photographer to see some of these little fellows moving about fearlessly within a dozen feet of the place where he stands in full view. At such times, as the members of a small band feed and bathe, rippling the water with their wings, preening their feathers, and even scratching their bills with their toes, they present a charming scene.



1. SEMIPALMATED SANDPIPERS.      2. LEAST AND SEMIPALMATED SANDPIPERS.  
3. SEMIPALMATED (AND OTHER?) SANDPIPERS.

1891  
1892  
1893  
1894  
1895

The notes of the Least, though confused with those of the Semipalmated Sandpiper, are generally distinguishable. The loudest and most characteristic is a grating *k-r-r-e-e-p*, often heard from single birds just taking wing or already in swift and erratic flight, as well as from small bands maneuvering high in the air. At times it doubtless denotes alarm, and it seems also to signify 'Where are you?' and to be used with the purpose of locating others of the species. There is also a much abbreviated note, which may be represented as *cher*, but is subject to marked variation; this may be used by the members of a flock as a conversational call, or it may represent slight uneasiness when either a single bird or a flock takes a short flight to avoid a person. Still another note is a soft, rolling *k-r-r-r-r*, not very different from the whiny of the Semipalmated, but less pronounced and much less frequently heard.

In common with two other members of its genus, the Krieker and the Whiterump, which wear an inconspicuous plumage much like its own, the Least Sandpiper has the curious habit of squatting or crouching when danger is near. We had stalked four of these birds at a pond-hole in a brackish meadow bordering Moriches Bay, and they had become so accustomed to our presence that they were feeding, finally, at a distance of only eight or ten feet. One of us happened to move in a way that alarmed the little sandpipers, so that one of them immediately squatted down on the wet mud, while another crouched with its head lowered. The camera was opportunely focused upon them, and caught them in the act (Plate IX). At such times the birds apparently like to get some little obstruction like a mud-lump, if possible, between themselves and the source of danger.

**Ereunetes pusillus.** SEMIPALMATED SANDPIPER; OXEYE; BIG OXEYE. — Abundant transient visitant, outnumbering even the Least Sandpiper by probably two to one. Though the Semipalmated is generally a tardier migrant than the other, both species reach the height of their abundance during the latter part of May and through the month of August. Extreme dates for the spring migration of the present species are April 28 and June 13 (Eaton); for the fall migration, July 4 and October 15 (Eaton).

This sandpiper is at home on the marshes, the mud-flats, and the outer beaches. It is observed in almost any numbers, from single birds to one or two hundred together, and occasionally many more. About the third week in May, from the marshes south of Freeport, we have noticed thousands of migrating snipe following the coast eastward in immense and fairly compact flocks; and it is probable that these flocks consisted chiefly of the Semipalmated and Least Sandpipers.

The feeding habits of both species are in general similar, but *Ereunetes* moves about more rapidly in search of food, is stronger on the wing, and shows a greater tendency toward bunching and wheeling. It seems not unlikely that the greater activity of the Semipalmated is associated with its habit of frequenting the surf-beaten shore, while the more leisurely ways of the Least, on the other hand, correspond with its preferred habitat on the quiet mud-flats and marshes. There are few more pleasing sights



along our shores than a band of Oxeyes trotting down the slope of the beach in the wake of each retreating wave, turning just in time to avoid the wash from a new breaker, and keeping barely in advance of its foamy front as they run back over the sands. Sometimes they linger a little too long for some morsel, and the water surges about their legs, forcing them into flight. The members of a flock do not separate widely when feeding, and upon taking wing, they close ranks and move in a compact body. If not disturbed, they fly steadily, but if they become alarmed from some cause, such as a gunshot, they dart from side to side in an erratic course.

The Gilgo Flats, on the inner side of the beach opposite Amityville, are an especially favorable place for observing Semipalmated Sandpipers in large numbers. The flocks start at dawn in search of food, and continue to move about actively for two or three hours. But by eight o'clock on a midsummer morning the birds have temporarily satisfied their hunger, and begin to collect in dense bunches on the inner and drier parts of the flats. Here they rest quietly and doze away with heads tucked in the feathers of their backs. In the space of a few rods as many as three hundred birds may congregate in numerous small and compact groups. At a distance these groups remind one of exposed beds of mussels; or if, at one's approach, some of the birds keep raising and lowering their wings, undecided whether to fly or not, they even suggest a cluster of butterflies on the sand.

Most Semipalmated Sandpipers are very confiding, though some individuals, which doubtless have been much persecuted, exhibit surprising wildness. The members of this species come to stool in greater numbers, probably, than any of the other Long Island shore birds, and many of them pay dearly for their gentleness and sociability, since gunners very frequently turn their weapons upon the little Oxeyes for want of bigger game. Birds with a crippled wing or a dangling leg, or with only one leg, are no uncommon sight, and at times the proportion of cripples to able-bodied birds is sadly large.

One of us in the Northwest has observed a Semipalmated Sandpiper crouching on its tarsi when alarmed, exactly in the manner of the Pectoral, White-rumped, and Least Sandpipers, but we have never noticed this habit in the present species on Long Island.

The ordinary note of this bird is a quick, monosyllabic *ch-r-r-uk*, sometimes shortened to a mere *kuk* or *kip*. A most pleasant little whinnying call, *eh-heh-heh-heh-heh-heh-heh*, is uttered in a contented, sociable tone by a bird either on the ground or on the wing, and is a common sound in migration time on the marshes and tidal flats. Variable as the notes of this species are, they are always distinguished by the absence of the *ee* sound which is characteristic of the Least Sandpiper's common note.

Each species so resembles the other, both in habits and in appearance, that it is by no means easy to distinguish them in the field except under favorable conditions. The points of difference are really numerous, but all of them are slight. The Semipalmated is a little larger, its general coloration is lighter, its breast less heavily streaked, its back less rusty in

the summer plumage, its bill stouter, and its legs darker. There is also less contrast between the dark middle and the light outer tail-feathers in this species than in the Least Sandpiper, as one may observe when the birds take wing directly away from him. Moreover, one who is familiar with their notes has an excellent means for separating the two species.

The females have decidedly longer bills than the males, and may be readily picked out of a 'bag' of birds by this character.

**Calidris leucophæa.** SANDERLING; SURF SNIPE.—A very common migrant on Long Island. It is one of the hardiest of our shore birds, being among the first to arrive in the spring as well as among the last to depart in the fall. It is even noted occasionally during the winter. It has been recorded on the migrations from March 15 to June 14, and from July 4 to December 8 (Eaton). On the southward flight it is usually present from late July to late October.

Though the Surf Snipe, true to its name, loves to run up and down the outer beach along the surf-line, it is also found very commonly on a sandy inner beach, such as that bordering Fire Island Inlet, and sometimes on a wide tidal flat along one of the numerous channels at the western end of Great South Bay. It occurs also on the open gravelly points projecting into Long Island Sound. We have seen but one bird — a cripple — actually on the marsh. Even passing birds have been noted but once during several years' observation at the junction of marsh and bay behind the beach at Mastic.

It generally travels in bands of five to twenty individuals of its own species, but larger numbers are occasionally observed together, and many single birds are met with.

The Surf Snipe is less shy than suspicious. In feeding along the beach, it will allow a pedestrian to follow it at fairly close range, and it will almost invariably come close enough to a blind to be at a gunner's mercy; yet it seldom musters the courage to pass directly in front of the blind within good photographic distance. Sometimes its apprehensions seem directed toward the large tin decoys, and it will pass them on the wing instead of walking or trotting among them in its progress along the shore.

The birds feed in a close flock, as they hurry along just where the wash from the sea rolls upon the beach. They obtain their food by rapid probing in the wet sand, whether its surface is bare or covered with a thin film of water; and they undoubtedly fare well upon the small but abundant animal life of the ocean's edge. What seems to be photographic evidence of the flexibility of the upper mandible of this species, was secured at Short Beach on August 14, 1910. In the photograph the bird's bill is apparently open at the tip where it touches the sand, though closed for the basal half of its length (Plate VII).

The Surf Snipe is strong on the wing. Flocks are often observed as they maintain their line of flight either over or just beyond the surf, keeping rather close to the water, and now and again wheeling with perfectly concerted action. When on the ground, the birds are able to move their legs

with machinelike rapidity, and sometimes travel along the beach at a trot faster than a man's walk.

The note of this species is a not very loud *ket, ket, ket*, uttered singly or in a series, and in a slightly complaining tone. We have heard it on a moonlight night from birds flying about over the beach.

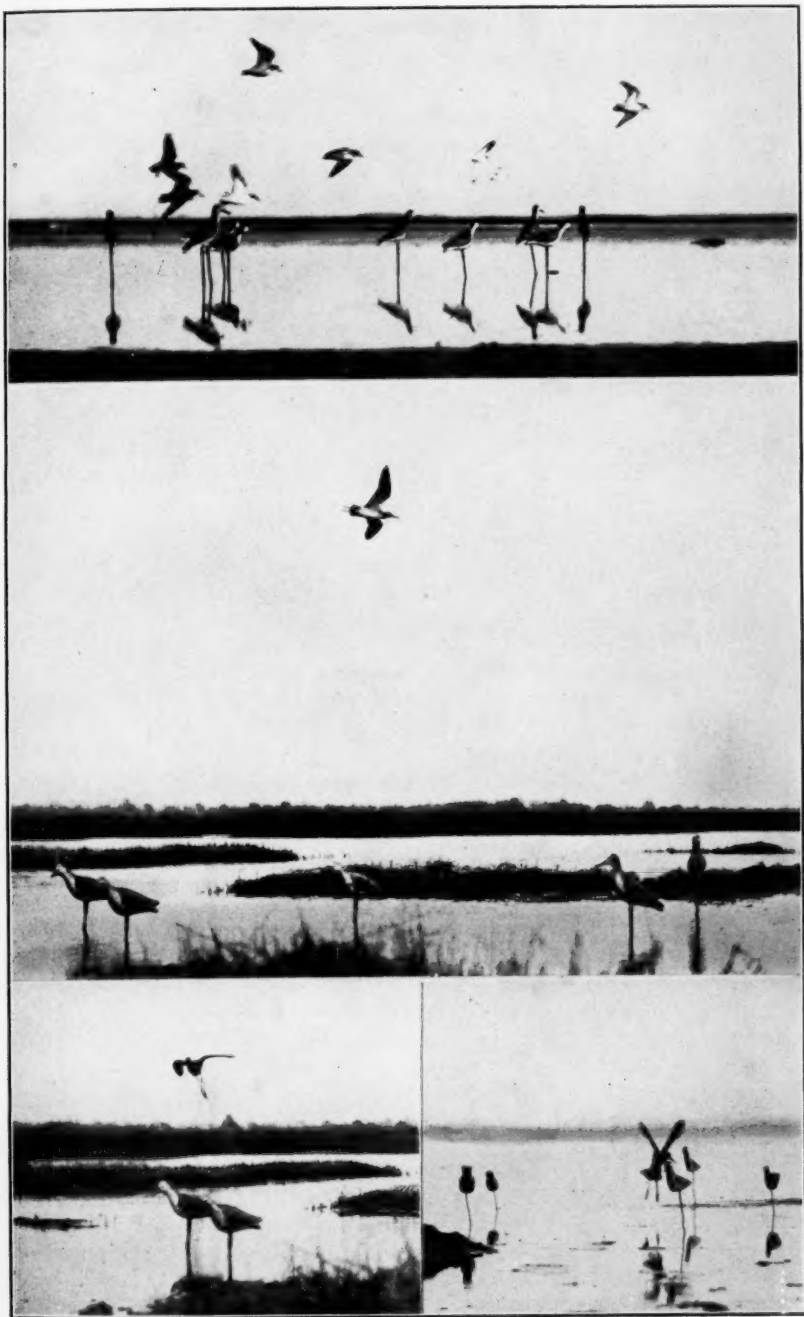
The bold white stripe running lengthwise through the middle of the blackish wing is conspicuous in a steadily flying bird, and serves to distinguish the species in any of the varying seasonal plumages.

**Totanus melanoleucus.** GREATER YELLOWLEGS; BIG YELLOWLEG; WINTER YELLOWLEG; YELPER.—With the exception of a few weeks in June and early July, the Greater Yellowlegs is present on these shores from April to November, or approximately half of each year. It is common on both the spring and the fall migrations, reaching its maximum numbers in the middle of May and in early September. Some exceptionally early spring records are March 9 (Eaton) and March 23, 1903 (Montauk, Braislin), the average date of arrival being about the middle of April. The birds frequently linger into June; several were noted as late as June 17 and 18, 1911, at Gardiner's Island (Harper), while Latham mentions June 19 as the latest date at Orient, and Eaton gives a record for June 22. The earliest date of arrival on the southward flight is July 3 (Orient, Latham), the average being about two weeks later. The latest fall records are November 24 (Eaton) and November 28, 1904 (Mt. Sinai, Murphy); usually the last birds are seen early in the month.

This species is one that has fairly held its own on Long Island in recent years, in spite of relentless persecution. As far as one can judge from shooting records, it was scarcely more numerous in the eighties than to-day. And the birds are still commonly observed in flocks of nearly the same size as in the time of Giraud, who wrote, 'They do not usually associate in large flocks, generally roving about in parties of from five to twelve.' It is largely by reason of their great watchfulness and wariness that they have survived in their present numbers. Doubtless another factor in their preservation is a habit exhibited by the members of a flock while coming in to decoys; they generally keep well separated, and thus do not expose themselves so fully to wholesale slaughter as do birds that bunch closely.

The favorite feeding ground of the Greater Yellowlegs is a large pool in the salt marshes (such as shown in Plate IX), where it generally alights and feeds in one or more inches of water. It is found less commonly along the mud-flats bordering the tidal channels, and only rarely upon the outer beach.

As a flock courses easily but swiftly above the marsh in orderly array, seeking some new haunt, its members frequently give voice to their loud, ringing whistles: *wheu-wheu-wheu*, or *wheu-wheu-wheu*, *wheu-wheu*, in series of three or more notes. The hunter in his blind gives a whistled imitation of the far-reaching sound, and eagerly scans the air for a glimpse of the oncoming birds. They fly up the wind, responding now and then to his call, and presently catch sight of the stool. If the collection of tin



1. "Oxeyes" over DECOYS.

2, 3, 4. GREATER YELLOWLEGS.

100  
100  
100  
100  
100



or wooden birds is well placed, and the hunter resists the temptation to make any movement behind his screen of bushes, the gregarious instinct of the Yellowlegs may overcome their well-founded suspicions and induce them to join their supposed comrades. Upon such an occasion, to fill one's gaze with the large, graceful snipe, as they come low over the marsh, set their long, curving wings, and drop with dangling legs into the pool near the farthest decoys, keeping their wings lifted high over their backs for a moment after alighting, is one of the most fascinating and thrilling experiences to be had on the Long Island marshes. And if the instrument that the hunter then trains upon his game is capable of no louder noise than the click of a shutter, so much the richer is his reward.

When in flocks, the Greater Yellowlegs do not associate closely with other species, and keep to themselves even when feeding in the same pool with a variety of shore birds. We have, however, noticed single birds in the company of other large snipe, such as the Lesser Yellowlegs and the Dowitcher.

Though, as we have already suggested, this species occurs usually in bands of less than ten individuals, we had a flock of about 30 birds under observation for a number of hours on May 20 and 21, 1911, at the well-known Oak Island pool. When we approached the place, numerous Oxyes merely moved to the farther side of the pool; half a dozen Black-bellied Plovers departed at once, and perhaps for good; the Yellowlegs, too, took flight, but after our blinds were built, they returned again and again, no matter how often disturbed. The pool contained, at that time, only an inch or two of water, and the Yellowlegs continually ran back and forth over the middle of it in an odd fashion. In spite of the extreme length and thinness of their legs, their movements were by no means ungainly. It can only be conjectured that these maneuvers were undertaken for the purpose of securing food, for now and then a bird would dart its bill into the water, as if to snatch up some small inhabitant of the pool, such as a fleeing killifish.

The Greater Yellowlegs is possessed of a varied vocabulary, which seems to have been slighted by most ornithological writers. Its principal notes consist of three very different kinds, all of which may be heard from a single bird in the space of only a few minutes.

A second note is less often heard than the usually described whistle; it seems to be used as a 'summons' call, as when birds on the ground call down a passing flock. It is a very pleasant and musical note, and often repeated — *toó-weet, toó-weet, toó-weet, toó-weet, toó-weet*. Hunters may use it to good effect in calling the birds to decoys. Some of them refer to this note as the 'roll'.

A third call is nothing short of astonishing to one who hears it for the first time. It is a curious, discordant cackle, or yelp, which probably gives rise to the vernacular name of 'Yelper.' A solitary Yellowlegs, alighting in a pool beyond the decoys, and entertaining strong suspicions of the blind, though not sufficiently alarmed to depart at once, is very apt to indulge in

this emphatic, henlike cackle: *kaouw, kaouw, kaouw, kaouw*. With each yelp it bobs its head vigorously.

Indeed, there are few of our shore birds that give such striking exhibitions of head-bobbing. The Yellowlegs may express its first mild suspicions by silent bobbing, but presently utters either its piercing whistle or its cackling yelp with the forward thrust of the head, lending so much energy to the movement that its whole body tilts with each bob. One can not help smiling at the bird's comical appearance. As its alarm grows, it bobs with increasing frequency, and finally springs into the air, redoubling its cries as it goes.

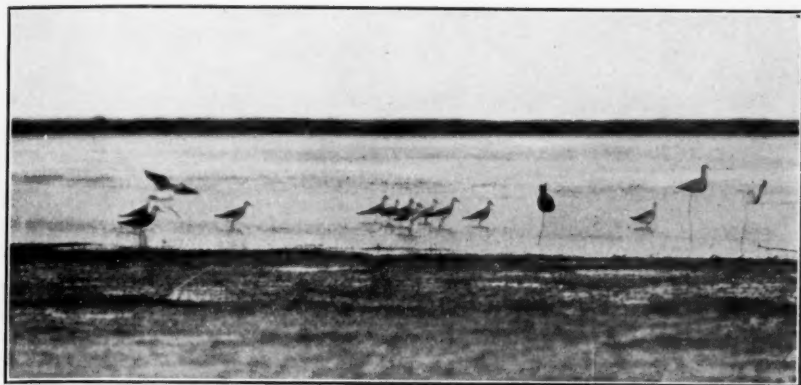
The dark upper parts, whitish tail-coverts and tail, and yellow legs are conspicuous marks which this species shares equally with the Lesser Yellowlegs. The bill of the Greater Yellowlegs is noticeably larger, but either species may be distinguished in the field more readily by its notes than by size.

**Totanus flavipes.** YELLOWLEGS; LITTLE YELLOWLEG; SUMMER YELLOWLEG; LESSER YELLOWLEGS.—Rare in spring, but a very common fall migrant, generally outnumbering the Greater Yellowlegs from the middle of July to the middle of September. Recorded from April 23 (Orient, Latham) to June 1 (Rockaway, Braislin), and from July 7 (Eaton) to October 28, 1912 (East Hampton, W. Helmuth).

The Lesser Yellowlegs frequents the shallow pools in the salt marshes, and is seen now and then on the mud-flats or on stranded layers of eel-grass along the shores of coves and bays. It is also very partial to brackish meadows with standing water; at such a favorable spot, on the inner beach opposite Mastic, 50 to 100 birds kept congregating for days near the end of August, 1913, despite persecution by gunners.

It is a very gregarious bird, and pairs or small flocks are more frequently observed than solitary individuals. It often associates with other species, such as the Dowitcher, Robin Snipe, and Greater Yellowlegs. In comparison with the last-named species, it generally travels in larger bodies, and is much less suspicious, stooping more readily and alighting closer to the blind. Its flight is similar, though perhaps not quite so strong as that of the larger bird, which at times covers distance with surprising speed. In all its movements and attitudes—whether wading among the decoys in water up to its thighs, bathing, running about over a mud-bar, standing at rest with neck drawn in, scratching its bill with a foot, or curving its slender wings in easy flight—the Lesser Yellowlegs is an exceedingly graceful bird.

In coming to the decoys, it may fly low and easily, or shoot down from a height; sometimes it whistles, and again it drops in without a sound. When the stool are planted on extra long sticks in deep water, the Yellowlegs will often flutter from one to the other, dipping its feet into the water without being able to alight. The bird shown in Plate XII, fig. 4, acted in such a manner until it happened to spy a little mud-lump, upon which it settled, about 16 feet from our blind. From this vantage-point it looked



LESSER YELLOWLEGS.

1000  
1000  
1000  
1000

100-100  
100-100  
100-100  
100-100

out over the stool, disregarding the blind and its occupants. Presently a Greater Yellowlegs passed by, and our bird followed it to a neighboring mud-flat. But after an interval of some twenty minutes, apparently the same Yellowlegs returned, and again perched on its favorite mud-lump. When we had secured a number of photographs, we tried to induce the bird to take wing, but the noises and movements we made were unavailing until it slipped off the lump by accident, and then departed.

The ordinary whistle of this species resembles that of the Greater Yellowlegs, but is not quite so loud and clear. It is given in a series of two or singly, *wheu-wheu* or *wheu* — seldom in a series of three or more, as is the larger bird's call. Flocking birds utter a short *wip*, which is frequently repeated, and sometimes runs into a series. There is also a musical 'summons' call, *toó-weet*, *toó-weet*, *toó-weet*, almost identical with that of the Greater Yellowlegs, but apparently not so loud. Once a flock of about a dozen birds, just after passing high over our blind, let loose a succession of these notes, as if to entice their inanimate counterparts on the marsh to join them.

In their feeding habits and choice of haunts, the two species of Yellowlegs are very much alike. So far as we have observed, they do not drill in the mud or sand in the manner of a Krieker, Oxeye, or Sanderling, but deftly snatch up their food with thrusts of their long bills, or occasionally search out small morsels by swinging their bills from side to side through shallow water.

***Squatarola squatarola*.** BLACK-BELLIED PLOVER; BLACKBREAST; BULLHEAD (juv.).—Though no longer occurring in the abundance of former days, this strikingly handsome plover is still a rather common transient on Long Island. The migration records extend from April 30, 1902 (Montauk, Scott), to June 17 (Rockaway, Braislin), and from July 1, 1903 (Quogue, Kobbe), to November 12, 1911 (Jones Beach, Griscom). It is usually present on the southward migration from the first week of August to the middle of October, the bulk of the flight taking place in late August and September. Most of the spring birds are seen from the middle to the latter part of May.

The Blackbreast seeks its food at low tide on the mud-flats and the sandy beaches, where it may be distinguished from afar among the Turnstones, Ringnecks, and Sanderlings, that share with it these habitats. With each turn of the tide the plovers fly about more actively, passing to and fro between their feeding grounds and the higher and drier portions of the marshes and shoals, where they remain rather quietly during the period of high water. At times they also alight on the wet marsh.

Nowadays on Long Island they travel generally in small bands of three or four to a dozen individuals; we have, however, observed a flock of as many as 150 near Freeport on the spring migration, and Mr. Henry Thurston reports a flock of about 800 in the same locality on May 30, 1913.

As a rule, other species of shore birds, as well as decoys, have no great attraction for these wary and self-sufficient plovers. A common sight,

however, is a number of Turnstones keeping some Blackbreasts company, and following them when the larger birds fly off. We have observed Robin Snipe, too, associating with them. When one approaches a feeding ground where several different species of the commoner shore birds are present, the Blackbreasts can generally be depended upon to take flight first and farthest from the intruder.

They do not wade in the water so habitually as they run leisurely over the bare flats. On August 24, 1912, however, a pair took us unawares by alighting in a couple of inches of water among our decoys at East Pond, Hicks Beach. One of the birds was changing to winter plumage, but the other was still in nearly full summer dress. They displayed only a little uneasiness while so close to the blind, and though taking their departure after a few moments, they settled again on a mud-bar 50 yards away, where they permitted several long-range photographs from an unconcealed position. The black axillars, which will distinguish this species in any plumage from the Golden Plover, were caught by the camera as one of the birds raised its wings to the fullest extent (Plate XIII).

During this same month, while standing on the open marsh near Freeport, we answered the call of an adult Blackbelly that came flying in our direction. As if recognizing at that instant the dangerous objects ahead, it shot suddenly downward, swerving sharply from its line of flight, somewhat in the manner of a frightened Oxeye. Nevertheless it circled round and round us for the better part of a minute, continually responding to whistled imitations of its melodious notes. It often exhibits this habit of circling when the sportsman in a blind endeavors to lure it within range. Like the Ringneck, it is apt to hover for a moment over the stool in passing by. It is strong and swift on the wing, and its flight is steadier than that of most of our shore birds.

The Blackbelly's trisyllabic whistle, *peé-oooo-eee*, is uttered when the bird is either on the wing or on the ground, and may be heard from afar. It seems perfectly expressive of the bird's wildness and freedom, and is altogether one of the finest sounds of the Long Island coast. The first note, when heard close at hand, has a peculiarly shrill and buzzing quality, but this quality is greatly mellowed by distance. There can be little doubt that the chief accent falls upon this note, though some writers place it upon the second, which is the most prolonged of the three notes. The second and third syllables are nearly alike in tone, and the transition from the one to the other is not at all marked, so that the final syllable now and then appears to be omitted. Another whistle, not quite so frequently heard, is a mellow *kloo-ooo*, or *koo-wee*, with perhaps a slight accent on the second syllable. It seems to be a call of contentment or sociability, and is commonly uttered on a flight of short duration. On several occasions we have heard a small party of these plovers, before or while taking wing, utter a few low, guttural notes, quite unlike their usual whistles; they seemed to be given as calls of attention or warning.

***Ægialitis semipalmata.*** SEMIPALMATED PLOVER; RINGNECK.—



The Ringneck, one of the most daintily dressed and most charming of the Long Island shore birds, is also one of our most familiar species, being exceeded in numbers only by the Least and Semipalmated Sandpipers. A regular and very common migrant, it is present usually throughout most of the month of May, and from late July to the first week in October. Extreme dates for the spring migration are April 19 and June 5 (Eaton); for the fall migration, July 6 (Orient, Latham) and October 22, 1912 (East Hampton, W. Helmuth). On the southward flight it does not become common before the first week in August, when flocks of considerable size may be seen.

This is essentially a bird of the mud-flats, just as the Piping Plover is a bird of the sandy outer beaches. And here is an interesting correlation between plumage and habitat in two closely allied species, the Ringneck's brown back harmonizing with the dark color of the mud, while the Piping Plover's pale plumage renders it inconspicuous on the bright sands. The Ringneck is not given to wading, but feeds along the borders of quiet tidal channels, on the bars and margins of pools in the salt marshes, as well as on the drier, stubby portions of the marshes, and even occasionally on the outer beach.

It associates freely with the two common species of Oxeyes, one or more of the plovers often being seen in a flock of these small snipe; it is also found commonly in the company of the larger shore birds. At other times, it travels in separate bands of three or four to twenty-five or thirty individuals. The members of a flock scatter somewhat in feeding, but on taking wing, they gather into close ranks, their bright under parts showing conspicuously as the flock wheels over the marsh.

The Ringneck is not very wild, nor yet as trustful as an Oxye, but, on the whole, it much prefers to keep a fair distance between itself and a human being. At nightfall, however, it sometimes permits a close approach, as it runs restlessly about the shore and gives its piping notes. Generally, at the appearance of an intruder, or on other occasions when its suspicions are aroused, it bobs its head in a mildly inquiring way. Decoys do not have the same attraction for this bird as for a Yellowlegs or an Oxye. When it does come to stool, it may hover for a moment, or even alight, but usually passes by without stopping. Perhaps this is accounted for, in part, by the fact that the decoys in most cases are set out in several inches of water, and the Ringneck therefore finds no suitable place for alighting near them.

Its flight is strong and direct — much less erratic or meandering than that of an Oxye. Its movements on the ground are not very rapid, and suggest somewhat those of a Robin; it stands quietly on a mud-bar, facing the wind, its head bent slightly forward with an intent air, then it trots forward a few steps, and stops to look about again for a morsel of food. Its legs do not seem to move with the twinkling rapidity of a Piping Plover's, for the mud-flats are less suitable for fast traveling than are the smooth sands over which the latter habitually runs.

The Ringneck's ordinary flight-note or call-note is a sweet and mellow whistle, *tyoo-cep'*. It is given repeatedly by birds on the wing, but those on the ground are generally silent when not disturbed. From hearing this whistle while spending the night on the marshes, we surmise that the birds are more or less active during the hours of darkness. Another and rougher note seems to signify excitement or suspicion; it is usually uttered singly, but sometimes a bird standing on the ground will give a rapid descendo series of these questioning notes, *keup-keup-keup-keup*, etc., the last few almost running together.

#### EXPLANATION OF PLATES.

##### PLATE VII.

FIG. 1. Blind and decoys at a pool on the outer beach — the Sanderling's haunt. Long Beach, L. I. September 19, 1909. (F. H.)

FIG. 2. Sanderling tracks. Fire Island Inlet, L. I. May 29, 1911. (F. H.)

FIG. 3. Sanderlings on the outer beach. Mastic, L. I. September 15, 1913. (J. T. N.)

FIG. 4. Sanderling on the inner beach. (Note the bill open only at the tip.) Short Beach, L. I. August 14, 1910. (F. H.)

##### PLATE VIII.

FIGS. 1, 2. Northern Phalarope. Long Cove, Great South Bay, L. I. April 2, 1911. (Photographed by Frank Overton, M. D.)

FIG. 3. Dowitcher and Oxeye. Mastic, L. I. August 17, 1913. (J. T. N.)

##### PLATE IX.

FIG. 1. Snipe blind and decoys at a pool on the salt marshes. Freeport, L. I. May 15, 1910. (F. H.)

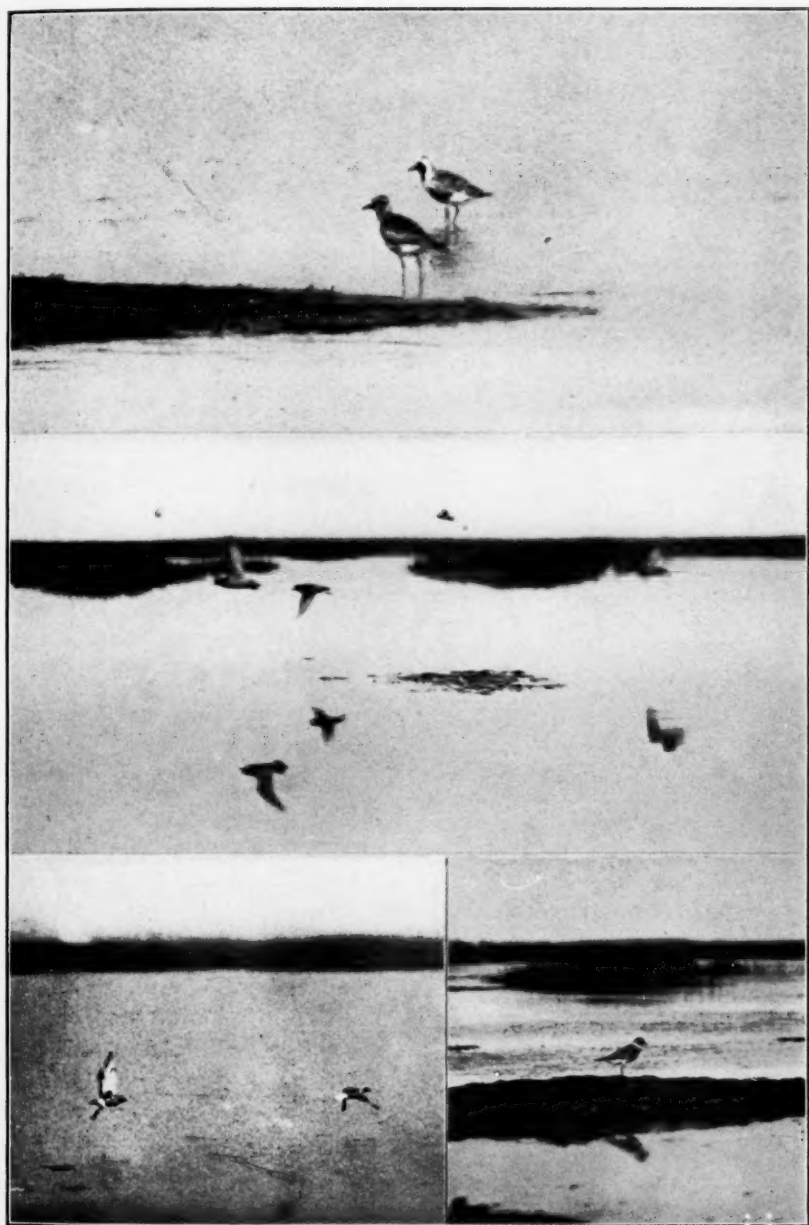
FIG. 2. White-rumped Sandpiper. East Pond, Hicks Beach, L. I. October 22, 1911. (J. T. N.)

FIG. 3. Pectoral Sandpiper. Mastic, L. I. August 24, 1912. (J. T. N.)

FIG. 4. Least Sandpipers in concealing postures; one bird squatting. Mastic, L. I. September 1, 1912. (F. H.)

##### PLATE X.

FIG. 1. Semipalmated Sandpipers. Jones Beach, L. I. May 25, 1913. (J. T. N.)



1, 3. BLACK-BELLIED PLOVERS.

2, 4. SEMIPALMATED PLOVERS.

1000  
1000  
1000

FIG. 2. Least Sandpipers (on left) and Semipalmated Sandpipers (on right). East Pond, Hicks Beach, L. I. September 8, 1912. (F. H.)

FIG. 3. Semipalmated Sandpipers (and probably other species) rising from a mud-flat. Gilgo Flats, Jones Beach, L. I. July 28, 1912. (F. H.)

PLATE XI.

FIG. 1. Oxeyes passing over decoys. Gilgo Flats, Jones Beach, L. I. September 4, 1911. (F. H.)

FIG. 2. Greater Yellowlegs wheeling over decoys. Freeport, L. I. May 15, 1910. (F. H.)

FIG. 3. Greater Yellowlegs coming in to decoys. Freeport, L. I. May 15, 1910. (F. H.)

FIG. 4. Greater Yellowlegs hovering among decoys, with legs dangling, but unable to alight in deep water. Mastic, L. I. September 13, 1915. (F. H.)

PLATE XII.

Lesser Yellowlegs. Mastic, L. I.

FIG. 1. Flock alighted among decoys. Late July, 1913. (J. T. N.)

FIG. 2. Flock passing over decoys. September 11, 1915. (F. H.)

FIG. 3. Two birds dropping in. (In wheeling sharply, one has turned almost over.) September 11, 1915. (F. H.)

FIG. 4. Single bird standing on mud-lump near decoys. September 1, 1912. (F. H.)

PLATE XIII.

FIGS. 1, 3. Black-bellied Plovers. (Note the black axillars showing in one of the flying birds.) East Pond, Hicks Beach, L. I. August 24, 1912. (F. H.)

FIGS. 2, 4. Semipalmated Plovers in front of blind at a pool on the salt marshes. Freeport, L. I. August 21 and 20, 1910. (F. H.)

## BIRD-WATCHING AND BIOLOGICAL SCIENCE.

## SOME OBSERVATIONS ON THE STUDY OF COURTSHIP IN BIRDS.

BY JULIAN S. HUXLEY, B.A.

*(Concluded from p. 161.)*

Now let us consider a few practical suggestions.

To begin with, the most valuable data are those secured through continuous watching. Choose a single species of bird breeding in a single locality, and resolve to get at the bottom of its life-history. This will mean visiting the place at least two or three times a week, (oftener if possible); make the visits as soon after sunrise as you can, for it is then that almost all diurnal birds show their greatest activity. If this is impracticable, then the middle of the morning is the next best time, and the late afternoon next. The heat of the day is usually poor. If you can be sure of the same pair time after time, so much the better. Anyhow, be resolved at each visit to follow out the behavior of individual pairs or birds for the longest possible period. After you have obtained a general rough idea of the various actions performed by the species, you will find it infinitely better, if you wish to get at their real meaning and connection, to keep your attention on a single bird or pair (even if this involves long spells of apparently useless watching, during periods of rest or feeding), than to jump from one individual to another whenever something exciting happens. This I can personally testify to be of the greatest importance.

Full notes should always be made, and should be made at the moment, or as soon after as possible, if they are not to lose half their value. Every week it is useful to go through your notes and make a little summary to see what new points have been gained, or on what you should especially concentrate during the week to come. A big scribbling pad is better than any bound notebook, as its use permits of the subsequent rearrangement of notes for filing.

Besides the one (or at most two) species you may choose for



thorough investigation in any one year, other birds will constantly be bringing interesting points to your notice. These should, of course, all be put on record. I have tried various methods, and have at last come to regard the card-index and folder system as by far the most convenient. Have a card-index drawer of 3"  $\times$  5" or, preferably, 4"  $\times$  6" cards. Each species on which you have notes is to have its own place; the species should be arranged in some definite classificatory order, preferably that of the A. O. U. Check-List, with guide-cards for the families, and possibly others of another color for the genera. Or the genera and species can be arranged alphabetically within the limits of the family. On the cards belonging to each species your field notes should be summarized very briefly under various headings. I recommend the following sub-division as one affording easy reference:—

- (a) Autumn and Winter habits.
- (b) Actions connected with the beginning of the breeding season (*i. e.* in monogamous birds, pairing-up habits).
- (c) Courtship and Display (including Song).
- (d) Fighting, and actions connected with Jealousy (including questions of Territory).
- (e) Nest-building, Egg-laying, and associated actions.
- (f) Incubation and care of the young.
- (g) General Miscellaneous notes, including localities, identification, call-notes, etc.

A few remarks on the scope of these subdivisions will, I think, be useful; perhaps the best way is to put a set of questions which must be answered for any species before we can consider ourselves in possession of its full annual history. I will take the headings in their order.

(a) *Autumn and Winter habits*: (1) Is the *individual*, *pair*, *family*, *flock*, or *composite flock* the unit? (Examples: In the Red-breast, *Erithacus rubecula*, the birds are solitary all through the winter; in early autumn the old birds and the full-grown young have fierce fights. This is due to the fact that the birds are non-migratory and in winter each requires a definite territory to support life. By *composite flock* I mean a flock composed of two or more species. For instance, in Europe Rooks and Jackdaws often feed together, and the small woodland non-migratory birds often band

together into flocks containing four or five species. I have seen three species of Paridæ (*P. major*, *P. cæruleus* and *P. ater*) together with Goldcrests (*Regulus cristatus*) and Creepers (*Certhia familiaris*) all travelling together through the tree-tops.)

(2) If the flock is the unit, does the pair persist within the flock? (*cf.* the Dabchick, cited above, p. 149). In some birds this is definitely not the case, since the sexes separate and the flocks are almost all of one sex: e. g. *Fringilla cælebs*, the Chaffinch.)

(3) In migratory birds, is the unit the same all through these months, or do the migrating flocks break up into pairs or individuals in their winter home?

(4) Is there any recrudescence of courtship-action in early fall, or in warm days in winter? (After family duties are over and before there is any scarcity of food, many birds go through a modified form of courtship. I have seen a pair of Kingfishers (*Alcedo ispida*) in October, in England, very obviously "courting." It would be of great interest to know in what ways the courtship of autumn differs from the typical courtship. A warm day in late winter often seems to arouse the dormant sexual actions, just as it induces a first attempt at song. This January I saw a Hermit Thrush, though quite alone, several times go through the motions of depressing the tail and drooping and spreading the wings, which on the one hand are the regular motions accompanying coition, and secondly have afforded the basis (by association of ideas) for a large number of the beautiful ceremonies of display.)

(b) *Actions connected with the beginning of the breeding season:*

(1) Is the species polygamous, polyandrous, promiscuous, or monogamous? If the last, does it pair for the season, or for life? (This question must be answered first, for naturally all the courtship will stand in relation to the answer to it. One very important point is the numerical proportion of the sexes. In some of the Game-birds it appears that there may be a large excess of males, but in most species the numbers are pretty equal. It is obvious that this point will have an important bearing on courtship, and it figures prominently in discussions of the Sexual Selection theory.)

(2) In those birds that are not monogamous, what actions initiate the breeding season? (very little is known on this point.)

(3) In monogamous birds, what is the date of pairing-up?

And what relation does it have to migration in migratory species? (In the Killdeer it appears to take place before migration (see below), while in the migratory species of Old-world Warblers (Sylviidae) it begins, as is well-known, after migration. See Eliot Howard ('07) for details on this point.)

(4) What is the mechanism, so to speak, of pairing-up? Is force used by the cock to the hen? (I do not think any cases of this are known.) Are there fights between cocks or between hens for the privilege of staying in the proximity of the bird of the opposite sex, who meanwhile is comparatively passive (the males of Mockingbirds and Thrushes seem to do this, and possibly the females too; Eliot Howard records many cases of such fighting among hens in the Sylviidae). Does the cock chase the desired hens until one consents to receive his advances? (This seems to be a very general method. It holds in many Ducks, probably in the Grebe, and in such species as the Killdeer, to speak only from my own experience.) Are there any special displays or other ceremonies associated with pairing-up, or does courtship in the sense of definite ceremonies only begin later? (It appears that the latter is frequently true. On this point compare what happens in Man; before some agreement is reached, courtship is merely a series of approaches; it is only later that a purely objective observer, from Mars or elsewhere, would be able to record the existence of definite "ceremonies." On the other hand, the period of "approach" is characterized by a certain amount of "display-action" — attention to dress, showing-off of prowess, etc. — and in birds too there must exist something of the sort. The best-known example is the song of the migratory Sylviidae in Europe, where the males, who have migrated some days before the females, attract their mates by singing. It will be of great interest to see whether other birds show the same sort of display, only appealing to the eye instead of the ear.)

(c) *Courtship & Display*: (1) *Song*: What are its dates of starting and stopping, and its relation to other activities? (In the Nightingale the song of the male ceases immediately the young are hatched, while the Song Thrush (*Turdus musicus*) sings nine or ten months of the year). Do both sexes sing? and if so, are the songs alike? (In the Cardinal the hens certainly sing, but not so well as the cocks.)

(2) *Courtship-action*: What are their details? Are they alike or not in the two sexes? (Great accuracy is needed, not merely in describing the different displays, but still more in following the sequence of events, and so analyzing the birds' mental states.)

(3) Are there special *structures* brought into action by courtship? (Peacock, Crested Grebe.) If no special structures, are there special *colors* only brought into prominence at courtship? (The Redshank (Huxley, '12) by its actions during display brings into notice the red of its legs, and the white of its tail and of the under surface of its wings, which are usually hidden. The Fulmar and the Kittiwake<sup>1</sup> have the inside of the mouth colored "delicate mauvy-blue" in the one case, "lurid orange-red" in the other (I quote from Selous, '05, pp. 123, 126). This "interior decoration" is displayed in a form of Mutual Courtship. The Ruby-crowned Kinglet gives a very interesting intermediate stage between structure-plus-color and color alone. The crown-feathers are ruby-red and slightly elongated; but the feathers on either side are so inserted as to cover over the bright patch in normal conditions. Only in moments of excitement is the red revealed; and the effect on the hen of such sudden flashing of the brilliant bit of color must be very great.)

Are there neither special structures nor special colors, but only special *actions* of courtship? (This is apparently the case in most of the Sylviidæ. All observations on similar birds will be of great interest, as in such cases courtship is at its most primitive.)

(4) Is there a long period of "engagement" or does coition take place immediately after pairing-up? (The latter seems to be true *e. g.* in the Sylviidæ; the former in many birds, such as the Crested Grebe, the Paridæ, etc. Facts are sorely needed on this point.)

(5) What is the relation of the courtship-actions to coition? (In *e. g.* the Blackcock and Redshank the one is an immediate preliminary and pre-requisite to the other, while in the Crested Grebe there is no direct connection at all, the courtship is "self-exhausting," and special ceremonies of an entirely different nature have been developed in relation to coition.)

(d) *Fighting and Jealousy*: (1) Is the fighting between males

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<sup>1</sup> *Fulmarus glacialis* and *Rissa tridactyla*.

fierce and genuine? (Tits, Thrushes, Mocking-birds) or is it degenerate, one might almost say merely symbolic? (Blackcock, Redshank, etc. Selous ('09) has some interesting remarks on this point.)

(2) Is there fighting between females? (Sylviidæ; and I have seen a chase between two female Nighthawks lasting for over thirty minutes.)

(3) How much of the fighting is due to mere sex-passion, and how much to jealousy proper? In other words, is it directed blindly against all others of the same sex, or definitely against a single intruder who is tampering with the mate's affections? (In the Grebe, jealousy is very strongly developed. We should expect to find jealousy where there is monogamy and mutual courtship. A special form of jealousy is seen in the Blackcock (Selous, '09) where the sight of a hen crouching to a cock rouses the anger of all the other cocks, who immediately rush at the successful suitor. Fighting due to mere sex-passion is seen in many Mammals, in such birds as fight previous to pairing-up, and in the ceremonial fights of such polygamists as the Blackcock.)

(4) Does jealousy modify the courtship-actions? (In the Crested Grebe, "Shaking" between the members of a pair after a flirtation by one of them, is of a special type.)

(e) *Nest-building, Egg-laying, etc.*: (1) Do both sexes share in nest-building, or not? If so, do they share equally?

(2) How long does it take to build the nest?

(3) How many nests are built? (The Grebe builds two or three, the European Wren (*Troglodytes parvulus*) and the American Magpie (*Pica p. hudsonia*) often four or five.)

(4) Is there more than one kind of nest? (The Bower of the Bower-bird of Australia is probably a modified nest, while the pairing-platform of the Crested Grebe is undoubtedly so.)

(5) Is there any form of courtship specially connected with nest-building? (Many birds during courtship carry leaves, twigs and other nest-materials in their beaks — *e. g.* Sylviidæ, Crested Grebe. Others that nest on the ground have displays in which kicking and scraping the earth, pressing or rolling the breast on the earth play a part (*e. g.* the Ostrich, and the Peewit (*Vanellus cristatus*); see Selous, '01.)



(6) Does either courtship or coition go on after the laying of the first egg, or all the eggs? (We would expect both to go on till all are laid, but not many facts have been collected on this head.)

(f) *Incubation and Care of the Young*: (1) Do both sexes share in incubation? and if they share, do they share equally? (It is interesting to find the cocks of some species with marked sexual dimorphism sharing the duties of incubation; *e. g.* Ostrich, Blackcap (*Sylvia atricapilla*). This latter, in addition to possessing a black head distinguishing him from the brown-capped hen, is one of the four or five best European songsters, and is reported by many authorities to sing while actually brooding the eggs! In some cases where the sexes share, the cock takes less of the duty, *e. g.* a friend has told me that in case of danger near the nest, the cock Crested Grebe will not go and sit himself, but yet will attempt to drive the hen back.)

(2) Do both sexes share in feeding the young? and if so, do they share equally? (Here too we get indications that the male's assistance is a comparatively recent development of evolution. He is often not quite so bold or assiduous as the female. Old Colonel Montagu brought a Goldcrest's nest from its natural situation, first on to his window-ledge, and then into his room; the male had continued to help feed the young while the nest was on the outside of the window, but refused ever to enter the room; but the hen remained as assiduous as ever, and succeeded in rearing the brood.)

(g) *General Miscellaneous Notes*: Nothing much need be said on this head. It is always well to remember that some actions of birds seem to be gone through simply for the sake of releasing energy in a pleasurable way, simply because the bird enjoys doing them. Gulls, for instance, in early Spring fly round in aerial evolutions, now solitary, now social; I have seen Wagtails (*Motacilla lugubris*) in bright days in Autumn dart and run over the lawn and sing as if possessed. In neither case was there the least connection with courtship. In addition, some actions which have been developed in evolution as part of courtship may be used to liberate energy thus pleasurably (*cf.* from a similar point of view, children singing and dancing when they are happy. They may do it spontaneously, and then the sound or motion will be haphazard; but if they have



been taught particular songs or dances, they will almost certainly reproduce some phrases or motions of these. What they have learned thus serves as a channel through which the emotion can be liberated.) As examples of this in birds, we may take the song of those species, like the common European Thrush (*Turdus musicus*) or the Redbreast (*Erithacus rubecula*), which continue singing almost or quite through the winter. The aerial tumblings of Ravens, Curlews, Herons and other birds should also probably be included here.

If desired, other headings can of course be added, on such topics as food-habits, migration, etc. One interesting point that has not received much attention is the variation of habits in varieties of a single species; *e. g.* the different songs of the Eastern and Western Meadowlark (*Sturnella magna* and *S. neglecta*). In Europe I have noticed that the Marsh Tit (*Parus palustris*) has a long and quite musical song on the Continent, while in England it restricts itself to call-notes.

The best method for keeping the actual field notes is to file them in folders. Each folder has a number corresponding to the number of the species in the card-index. The numbers used in the A. O. U. Check-list may be used with advantage. In the folder the notes had best be dated and arranged chronologically, and reference from the cards to the notes will then be by date.

Let me take a concrete case. In February of this year I have been seeing a little of the earliest pairing-up habits of the Killdeer. While the birds are still in flocks, and the majority of them still far south of their breeding-places, this process is already beginning. Most of the flocks are simply feeding and resting unconcernedly as they have been doing all winter; but here and there one bird will be seen flying up close to another, who in turn will usually take wing and fly off, often to be pursued two or three times. A still smaller proportion of the flock seems to be already paired, and may be seen going through a ceremony together; I have not yet quite got the details of this, but both birds seem to participate, walking round and round each other in a strange formal way with heads pointing in opposite directions and necks straightened stiffly out, at the same time uttering a curious soft note. In passing, I may say that the Killdeer should be a good species in which to study

pairing-up. Personally I believe that the above facts should be interpreted thus — that the cocks fly up to the hens, either indiscriminately, or more probably, I believe, to those they unconsciously prefer; the hens in their turn either do not feel drawn to the suitors, in which case they reject them by repeatedly flying away, or else they are in their turn attracted by one of the cocks. This attraction depends on three factors; — (i.) the physiological state of the hen; (ii.) the instinctive mental (psychic) preference felt by the female for particular males, which must exist in birds as well as it obviously does in Man, though perhaps in different degree; (iii.) the persistence of the cock, which will tend to win the hen if she is doubtful but not unfavorably inclined, although it will make her more obstinate if she is repugnant from the first.

Once a hen consents to let a cock come right up, the next step is not coition, of which there is no question for many weeks, but this mutual courtship-action which to me appears as the link binding the pair together before the time of fertilization and nest-building. Be this interpretation as it may (and I confess that there are many little gaps yet to be bridged over), I yet have some definite facts, and they are filed as follows.

In the card-index the Killdeer (*Oxyechus vociferus*) comes under the family *Charadriidæ*, with the A. O. U. number 273. In my vertical file is a folder labelled 273 Killdeer. In this are my notes, under dates Feb. 7, 15 and Feb. 21, 15. In the card-index after the card of the species follows a card labelled (a) with the remark "common in small flocks throughout winter, Houston." Then one labelled (b), on which is written;

Approach flights of ♂	Feb. 7, 15.	Feb. 21, 15
Chase of ♀ by ♂	Feb. 7, 15.	Feb. 21, 15
Chase repeated twice	Feb. 21, 15	
Some birds paired	Feb. 7, 15	
Paired birds going through a ceremony	Feb. 7, 15	

When I have some more data, I shall go through all my facts and write a short summary of the pairing-up on another card which will also bear the heading (b).

The general system is now clear; it can be easily modified to suit anybody's ideas. Its chief advantages are ease of reference,

and the way in which facts under various headings can be summarized as they accumulate.

I intend to go on collecting data on courtship of birds for a number of years, and will be very grateful if other watchers will send me facts. Of course fragmentary details are not of much value, and in the case of diary notes made on the spot, a short summary under various headings will enormously reduce the labor involved in digesting the notes.

Before I close I would like to mention a few problems that have occurred to me during the short time I have been in America — problems that would be far better attacked by a number of watchers.

In the first place the whole conception of mutual courtship is new, and has to be worked out in detail. As definite problems here, I would suggest the following.

(1) What is the course of events in the Meadowlark, a bird with marked protective coloration above, and with its tail showing recognition marks, but with brilliant and probably sexual coloration on the breast, which is equally developed in both sexes?

(2) What is the meaning of the duets which only a few weeks ago I heard performed by the Barred Owl (*Strix varia*)? One performer gave a variation of the regular hooting, while the other rendered the same musical phrase, but in tones of demoniacal laughter, and alternating its notes with those of its mate. Bendire has a note on this remarkable habit.

In what was probably the Short-eared Owl I have seen remarkable "bowing duets," the birds curtsying to each other in exaggerated fashion. In the Dabchick, the vocal duet is the most prominent feature of courtship, taking the place of the head-shaking of the Great Crested Grebe.

(3) In a single group, like the Sparrows, we find very different gradations of sexual coloration. What is the difference between the courtship of such species as the Chipping Sparrow, the Lark Sparrow, the English Sparrow, and the White-throated Sparrow? In the first two, both sexes are alike, but the first species is sober-colored, the second distinctly gay; the last two show sexual dimorphism in varying degree. Still other species could equally well be chosen for the study.

(4) In the Woodpeckers, both sexes are usually fairly brilliant,

but the male is often distinguished by a very small patch of red on the head. To correlate this with courtship-habits would in itself be interesting; and still more so would be to compare the courtship of the average Woodpecker with that of the Red-Headed Woodpecker, where both sexes are in the first place similar, and in the second place brilliantly colored.

(5) Various similar interesting comparisons within groups can be made. *E. g.* between the Robin and the various Thrushes; or between the sexually dimorphic Ducks and the sexually similar Geese and Swans.

(6) The whole family of Grebes (Podicipidæ) is one in which very interesting results will be forthcoming. There is every variety in the degree of ornament while the sexes are on the whole very similar. For instance, in the Dabchick and the Pied-billed Grebe there is very little ornament, and in the Dabchick at least the mutual displays are largely vocal. In the Great Crested Grebe and the Horned Grebe there is a great deal of ornament accompanied, in the former species at least, by elaborate mutual ceremonies.

(7) In most sea-birds mutual courtship seems to be the rule. From my own unpublished observations it seems to be at its most primitive and unspecialized among the Gulls.

Selous ('05) has some interesting notes on Guillemots, Fulmars and Kittiwakes.

The Puffin (*Fratercula arctica*) in which during the breeding-season the bill *in both sexes* enlarges enormously and becomes brilliantly colored, will undoubtedly furnish interesting data; I recommend it to all those who love the grotesque.

(8) Finally, the Heron family is extremely interesting. In it the sexes always resemble each other; but while the Bitterns are on the whole sober and unornamented, we get crests and breast-plumes in such forms as the Louisiana and the Great Blue Heron, and most elaborate and often exquisite ornaments in species like the Reddish Egret, the Snowy Heron, and the ill-starred American Egret. I have absolutely no doubt in prophesying that these latter birds will show most elaborate and beautiful mutual dances and displays.<sup>1</sup>

<sup>1</sup> Since the above was written, I have had the opportunity to study the courtship of the Snowy Egret and Louisiana Heron on Mr. McIlhenny's remarkable Heron-pond in Louisiana. The results, though shortly to be published *in extenso*, are worth brief mention here.

Besides Mutual Courtship, another interesting subject is that of social gatherings at pairing-time. I had a little opportunity of seeing the gatherings of the Blue Jay last spring in Georgia, and it seemed to me that the gatherings resembled our dances in one respect — in that they “gave opportunities for the young men and women to meet each other.” I should welcome all notes on this subject. The Flicker also has gatherings in early spring. As early as February 20th of this year I saw a gathering of ten or twelve in a large tree, but was unable to see anything of what was going on.

The Swifts and Swallows might prove interesting, especially the former, with their aerial chases of an evening. They are said, apparently on good authority, even to perform the act of pairing in mid-air.

Next comes another set of interesting problems — those of the reversal of the usual habits and duties of the sexes. The Phalaropes are the classic instance of this, and would well bear re-investigation. On the other hand, all the Hawks and Falcons show it to some extent, and in some ways would more repay watching, since in them the process is still in its early stages. Here, from what few facts are known, it seems that there may be a regular Darwinian courtship by the cock; this, in these aerial lords, takes the form of a series of wonderful display-flights. In the Kestrel (*Falco tinnunculus*) I myself have witnessed a cock time after time

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As I prophesied in this paper, there is a marked “mutual courtship,” though not of quite such an elaborate nature as I had expected from my experience with the Crested Grebe. The most interesting thing about it, perhaps, is the fact that there is a regular honeymoon of two or three days, during which the pair sit together on the nest-site they have just chosen, and, without attempting to start building, are content with running their bills through each other's aigrettes, huddling close up to each other, and now and again giving a burst of quite elaborate mutual display — neck raised, wings drooped, and feathers bristled. After this honeymoon, the mutual displays go on, not merely throughout the period of nest-building, taking place whenever a stick is brought to the nest by one bird, to be laid by the other; but right through the time of incubation and care of the young, occurring whenever one bird relieves the other on the nest.

But at the very beginning, before pairing-up occurs, there appears to be a pure Darwinian courtship, the males showing off their plumage in a special display to the females, who on their part do not use their plumes in display at all until after they are paired up. Thus we get Darwinian display before pairing, and Mutual display after pairing — a state of affairs to me at least entirely unexpected, but showing once more how important are the very earliest manifestations of courtship — the pairing-up habits — and how essential it is to follow the course of events in any one species of bird throughout the whole of the season.



come swooping down the wind straight at the hen (who was perched on a bough), swerving high into the air when barely a yard from her; sometimes he would swing up so close to her that she would start back fluttering so as not to fall off her perch. A friend who knows the Peregrine Falcon in the Welsh mountains tells me that similar but even more startling evolutions are performed by the cock in this species. On the other hand, when it comes to incubation and the feeding of the young, it is the large and strong female who apparently usurps most of the ordinary duties of the male, for she does most of the catching of prey, while he sits longer on the eggs and young (see Heatherly, '13). It is obvious that observations here will be of interest.

In the Belted Kingfisher, the hen has a chestnut breast-band, which is absent in the cock. Here the female would appear to be the brighter, and investigation of the courtship, with this in mind, might be of value.

Finally I would suggest that the nuptial habits of the Turkey Buzzard and Black Vulture would be interesting from a quite special point of view. It is either an obvious, or else a startling fact, according to your point of view, to find that the lower animals have on the whole the same basis of æsthetic standards as ourselves. This is shown, for instance, by the preponderance of colors and forms that are agreeable to *us* in the courtship-structures of birds and other animals, or by the fact that flowers attract bees and butterflies by means of colors and scents that we too find beautiful or pleasant. On the other hand, some flowers rely for their fertilization upon carrion-feeding flies, and the colors they have developed are lurid yellows or fleshy pinks, with odors that are strong and often disagreeable (to us). (See Weismann, the Evolution Theory.)

The American Vultures too are carrion-feeders; such "ornaments" as they possess — the naked colored skin of the head, and the frill of feathers round the neck, are, although striking enough, yet hideous to our eyes. It would be a further notable piece of evidence in favor of Professor Washburn's idea of the animal mind, a further corroboration of the idea that there are spiritual as well as material natural laws underlying biological facts, if it were found that the courtship-action of these scavengers lacked all the normal grace of birds' love-making, and were to our eyes as



repulsive as their food is to our noses and their feeding-habits to our ideas.

In conclusion, I would like to thank 'The Auk' for so courteously extending its pages to me; I hope that these notes and suggestions may do something of what I intended they should do — I hope that they will show that bird-watching is the foundation of a real science, the science of the behavior of birds in their natural environment. Bird-watching, too, is in itself a sport, as all who have tried it well know; but those who attempt to understand the motives of the birds, the connection of their doings and the origin of their various habits, will find themselves not only experiencing the sportsman's thrill, but also the intellectual interest of the detective piecing together the broken chain of evidence, and the human feelings of a spectator at the play.

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Houston, Texas.  
October, 1915.

ERRATUM p. 146, line 1, for Toucans read Hornbills.

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## ANATIDÆ OF SOUTH GEORGIA.

BY ROBERT CUSHMAN MURPHY.

### Plate XIV.

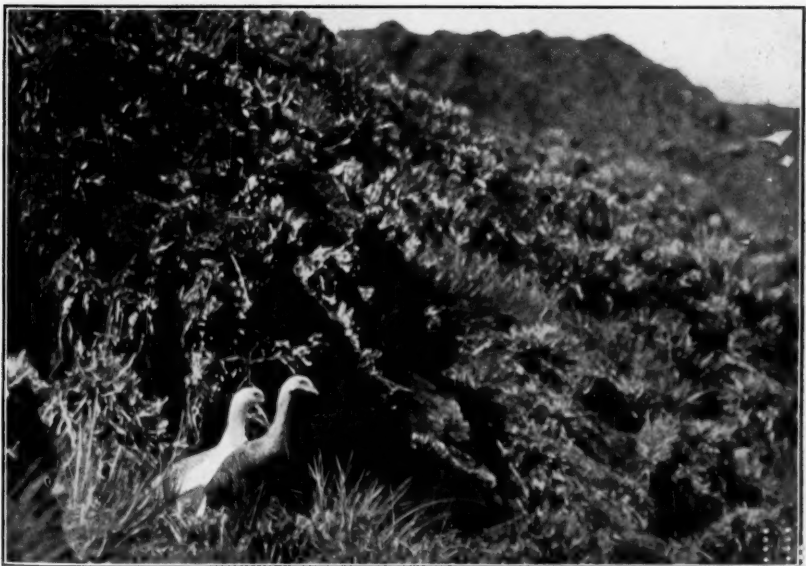
This paper is the twelfth<sup>1</sup> dealing with the ornithological results of the South Georgia Expedition of the Brooklyn Museum and the American Museum of Natural History.

### *Nettion georgicum* (Gmel.)

*Anas georgica*, Gmelin, Syst. Nat., I, 2, 1788, 516.

*Querquedula eatoni*, von den Steinen, Intern. Polarforsch., 1882-83, Deutsch. Exp. II, 1890, 219 and 273.

<sup>1</sup> A list of the preceding papers, not including several brief notes, follows: (1) Preliminary Description of a New Petrel, 'The Auk,' 1914, 12, 13; (2) A Flock of Tubinares, 'The Ibis,' 1914, 317-319; (3) Observations on Birds of the South Atlantic, 'The Auk,' 1914, 439-457; (4) A Review of the Genus *Phaethria*, 'The Auk,' 1914, 526-534; (5) Anatomical Notes on the Young of *Phalacrocorax atriceps georgianus*, Sci. Bull. Brooklyn Mus., II, 4, 1914, 95-102; (6) Birds of Fernando Noronha, 'The Auk,' 1915, 41-50; (7) The Atlantic Range of Leach's Petrel, 'The Auk,' 1915, 170-173; (8) The Bird Life of Trinidad Islet, 'The Auk,' 1915, 332-348; (9) The Penguins of South Georgia, Sci. Bull. Brooklyn Mus. II, 5, 1915, 103-133; (10) Notes on American Subantarctic Cormorants, Bull. A. M. N. H., XXXV 1916, 31-48; (11) Two New Diving Petrels, Bull. A. M. N. H., XXXV, 1916, 65-67.



1. SOUTH GEORGIA TEAL.

2. MAGELLANIC GOOSE.



*Querquedula antarctica*, Cabanis, Journ. f. Ornith., 1888, 118, pl. 1.  
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Endemic Anatinæ inhabit several of the subantarctic islands, the species peculiar to South Georgia being the southernmost of the whole group. This little teal was among the birds noted by Captain James Cook in January, 1775, on the occasion of the first recorded landing at South Georgia.

Eleven adults and one duckling were collected by the writer between November, 1912, and March, 1913. A single additional skin was received subsequently from Mr. José G. Correia, of New Bedford, Mass.

Under the new name *Querquedula antarctica*, Cabanis in 1888 published a colored plate of this teal. The figure is poor as regards both contour and coloration, and the bill is shown entirely black. Lönnerberg (*loc. cit.* Taf. 2) illustrates the head of a male, showing correctly the distribution of color on the bill, but here again the yellow of the lithograph is very unlike the hue of the living bird's bill. I had Lönnerberg's plate with me at South Georgia, and compared it with freshly killed teals.

Lönnerberg's description of the species leaves little to be desired. It should be amended to this slight extent, *viz.*, mature females, as well as males, have the central velvety black stripe along the tertials, although on the average it is slightly more pronounced in male specimens. In general, the female is distinguishable only by the dull speculum and slightly smaller size. The entire speculum in each of my eight adult males has a green gloss when viewed obliquely. Birds in fresh plumage have conspicuously whitish breasts, due to wide colorless margins on the feathers which subsequently wear away, leaving only the brown central portions.

*Flesh colors.* Iris dark brown. Culmen, nail, and distal border of maxilla, black; remainder of tip of bill, slaty blue; sides of maxilla Naples-yellow, becoming greenish where it blends with the blue tip. Legs and feet olive-green, mottled with sooty-brown.

*Measurements in millimeters.*

Eight males, collected between November 30 and December 30. Length (skins), 418-445; wing, 211-222; tail, 93-104; culmen,

from frontal feathers, 32-36; width of bill at base, 12.5-16; tarsus, 35.5-39; middle toe and claw, 45-51.

Four females, collected between December 1 and March 3. Length (skins), 390-412; wing, 195-207; tail, 85-93; culmen, from frontal feathers, 31-34; width of bill at base, 12-15; tarsus, 35-36; middle toe and claw, 46-49.

	Length	Wing	Tail	Bill		Tarsus	Toe
				culmen	width		
Average of 8 males	432	217	100	34	14	37	48
" " 4 females	404	201	89	33	13	36-	48

The testes of a male shot on December 1, 1912 measured  $38 \times 19$  millimeters.

The crop of a female collected January 2, 1913, contained marine amphipods.

Salvadori (*l. c.*, p. 264), without having seen a specimen of *Nettion georgicum*, concludes that its affinities are with the group of teals containing the South American species *N. flavirostre*, *N. oxypterum*, and *N. andium*. A comparison of my specimens with all of these, however, shows that the South Georgia bird is quite distinct. Its real relationship, hitherto unsuspected, is with the duck known as *Dafila spinicauda* (Vieill.), a widely distributed species, occurring, apparently in the form of several undescribed geographic races, from Brazil to the Straits of Magellan and the Falkland Islands. The South Georgian teal is, indeed, almost a facsimile of *Dafila spinicauda*, smaller, considerably darker (especially on the under surface), but with similar proportions, the same pattern and distribution of color over the whole body including the bill (*vide* R. H. Beck, label), the same wholly black speculum with a green sheen, the same black-striped tertials and pointed tail. Dr. Frank M. Chapman, who first called my attention to the striking resemblance between the South Georgia birds and skins of *Dafila spinicauda* in the magnificent Brewster-Sanford collection, remarked at the same time that the case furnished an excellent example of taxonomic relationship obscured by inaccurate nomenclature.



Considering the similarity of these two ducks, it is rather surprising to discover that *Dafila spinicauda* has only fourteen rectrices, whereas *Nettion georgicum* has sixteen. Usually, among the Anatidæ as well as other groups, the larger species have the greater number of tail feathers, but here the rule is reversed. *Dafila acuta* has sixteen rectrices, so that in this character it is no closer to *D. spinicauda* than the latter is to *Nettion georgicum*, while in all its other characters it is vastly further removed. In short, after comparing the color pattern, the proportionate dimensions of bill, wing, foot and tail, the shape of the central and outermost rectrices, and the graduation of the primaries, in these three species of ducks, I am forced to the conclusion that *Dafila spinicauda*, the closest known relative of *Nettion georgicum*, should likewise be relegated to the genus *Nettion*, or else a new genus, intermediate between *Dafila* and *Nettion*, should be erected to contain it.

Since the establishment of numerous whaling stations at South Georgia, the native teal has fared badly, the whalers losing no opportunity of bringing the toothsome birds to table. In the neighborhood of Cumberland Bay its numbers have been greatly reduced, although I saw six, all extremely wild, on November 28, 1912. Fortunately, the configuration of the land at South Georgia is of a character to prevent the extermination of the species, for the half dozen northern fiords to which the whaling stations are confined are for the most part separated from adjacent fiords by impassable glaciers and ice-capped ranges. Therefore the teals may be wiped out in one valley, and yet be abundant just beyond the next mountain. Judging from several accounts of South Georgia, particularly that of Klutschak (1881), these birds are not found at all on the southerly or Antarctic slope of the island.

At the isolated Bay of Isles, I found the teals common about the middle of December, which corresponds to our June. They were more numerous on the islets in the bay than on the mainland, and were remarkably unsophisticated, allowing bands of men to walk right up to them as they fished for amphipods from the rocks in the kelp fields at low tide, or dabbled in the fresh water ponds that filled every hollow of the grassy islands. As they fed, they quacked softly from time to time.

On December 29, Mr. Correia and I came across a pair of these birds, whose photograph is here reproduced, while they were feeding in a tiny glacial streamlet on the mainland south of the Bay of Isles. They were well hidden by tall tussock (*Poa flabelata*), and we did not see them until we had almost stumbled over them. They seemed unconcerned, however, and continued prodding about in the mud. When I stepped within six feet, they raised their heads and waddled farther off among the hummocks, from where they peered out through a screen of drooping grass. All but their bright eyes and yellow bills blended completely with the surroundings. Much against our sentiment, Mr. Correia shot the female; as up to that time I had been able to collect only two of this sex. The drake flew off whistling, with a teal's characteristic speed. Two or three of the duck-hunting Norwegian whalers informed me that if, on the other hand, we had shot the drake, his mate would have refused to leave the spot. If this be true, does it indicate peculiar fidelity, or merely dependence and lack of initiative?

Certainly the female teals as well as the males show plenty of courage and resourcefulness when it comes to the protection of their young. The ever-present enemy at South Georgia is the skua (*Catharacta*), and when a teal and its brood of ducklings are surprised the parent feigns lameness in a manner which needs no description, while the downy young disappear like magic in the tussock grass. I have hunted on hands and knees for half an hour, but, like my predecessors, I failed to locate even one of the silent, practically invisible youngsters. Our ship's fox terrier, however, was more successful. On February 6, 1913, after the dog had been called back from a "wild goose chase," that is from following a mother teal which had been duping him, he sniffed about the spot where the family had been flushed, and at length caught one tiny duckling. It had evidently been recently hatched, and was a pretty, brown, long-tailed, confident little bird. It sat on my hand in the ship's cabin and preened itself, stroking its back with its bill, and scratching its head with its foot. It could also jump lightly from considerable heights to the floor without being injured in the least.

During the last few days of February, we found the teals abun-

dant and exceedingly tame on the east shore of Possession Bay, several miles back from the ocean front. Here they fed in the ponds and in the bare, wet runways between tussock hummocks. Many times pairs came whizzing toward me down the wind, wheeling to face it just before they settled on the ground or water, generally within a few yards of me. I often startled parents with their broods, and heard the sharp note of alarm as the ducklings scampered to cover. Once a misguided skua pounced down upon a female as she was fluttering lamely around me, but the duck flew away with a bound and easily distanced her enemy. On other occasions skuas carried off in their bills teals which the mate of our vessel had just shot. Many previous collectors have likewise been exasperated by this bold trick of the skua.

On February 28, I discovered a teal's nest on top of a hummock, close beside a pond and two hundred yards from the shore of Possession Bay. It was covered by dead, standing blades of grass which completely arched it over. The sitting duck peeped out when I approached, but did not leave until I touched the hummock. The nest was lined with dead grass and a very few feathers, and held five eggs which lay with their small ends together in the deep bowl. The eggs were rounded-ovate, and cream colored, with a highly polished surface. Believing them to be heavily incubated, I did not disturb them.

Members of the German expedition of 1882-83 observed the first pairing of the teals on November 19, the first eggs on December 8, and the first young on December 18. The majority of the young, according to von den Steinen, were nearly full-grown by the end of January; but newly hatched ducklings were seen again in the middle of February, and one still in the down was noted as late as March 15. Possibly the birds normally rear two broods, or it may be that a second laying is often forced through the destruction of the first eggs by skuas.

Five eggs and young is the number reported by Lönnerberg, and the number that I noted invariably. The comparative smallness of the brood conforms to a general state of affairs among birds of the far south, where the struggle for existence may be considered as peculiarly severe. Thus the Antarctic terns, both *Sterna vittata* of South Georgia, and *Sterna hirundinacea* of the Powell

Islands (South Orkneys), lay but a single egg as against the larger sets of their northern congeners. It would seem, as a rule, that birds whose downy young are particularly liable to fall a prey to such enemies as predatory carnivores, fish, or turtles, *e. g.* many northern waterfowl, lay a large number of eggs; but that southern species, among which the chief source of danger lies in the destruction of the eggs before hatching, either by exposure to the perpetually chilly weather, or discovery by the skua, have uniformly small sets. Many northern water birds are known to cover their eggs with down or vegetation and to abandon them temporarily. At South Georgia, where the equalized, mean annual temperature is close to the freezing point, even brief exposure means certain death to the eggs, as I observed in the penguin colonies. Under these conditions, it is obvious that a small number of eggs can be more successfully incubated than a large number. It must be admitted, however, that the application of this rule to the one-egg sets of certain tropical birds, such as *Gygis* and *Anöus*, is rather obscure.

I seldom if ever saw more than two dozen South Georgia teals during one day, and I should say that although the species is common, and well distributed along the temperate coast of the island, it has never attained the abundance and relative dominance of its counterpart, *Dafila eatoni*, at the somewhat less polar region of Kerguelen Island in the southern Indian Ocean. At Kerguelen, British officers of the Transit of Venus Expedition are said to have shot more than two thousand teals within a radius of eight miles. Such a slaughter could not be duplicated at South Georgia, although both von den Steinen and Lönnberg report that in winter the teals gather in flocks of a hundred or more along the shores of the fiords. The latter writer says also that the males are more numerous than the females, a statement which my observations tend to confirm.

***Chloëphaga magellanica* (Gmel.).**

The upland goose is an introduced species at South Georgia, a few pairs having been imported from the Falkland Islands in 1910 or 1911 by Mr. J. Innes Wilson, British Magistrate at Cumberland

Bay. The immediate reason for the experiment, as Mr. Wilson informed me, was that the fine bird had become *persona non grata* to sheep ranchers in the Falklands, because it was designed by nature to feed upon grass, and hence was considered an impediment to the fattening of mutton. So the Falklanders had outlawed the goose, and placed a bounty upon its head.

Mr. Wilson freed the transported birds in the admirably adapted, grassy country about Westford, Cumberland Bay, where they increased and spread encouragingly, apparently assured of a future in a land in which they would be forever untroubled by the rivalry of sheep. I saw about a dozen adults in this region on December 9, 1912.

Unfortunately, some of the whalers from a neighboring station have persisted in hunting the geese in defiance of the law. A letter received from South Georgia during 1915 stated that the number had been reduced to six or seven birds which had a very slight chance of replenishing the population.

During our stay in Cumberland Bay, the cabin boy of the *Daisy* came aboard one evening in high glee, bringing in his pockets five very young upland geese which he had captured in one of the Westford lakes. Ordinarily I should have been glad to receive specimens, but in the case of this species I felt constrained to carry the lively goslings back to their home, and, if the parents did not appear after a time, to attempt to rear the young in captivity. But the former experiment was a complete success. Arriving next morning at the lake, we saw several pairs of adults lurking on the far side. One of the goslings *peeped*, and immediately a guttural clucking came in answer from across the water and a barred goose began to swim straight toward us, followed at a discreet distance by the snow-white gander. I put the young brood in the lake, but each gosling attempted to scramble out, until it heard the call of the approaching mother, when all five turned their tails and swam bravely away. The parents joyfully received their family again, and the flotilla disappeared around a point of land with the youngsters well guarded, side by side between the goose and her pompous mate.

## THE CLASSIFICATION OF THE SCOTERS.

BY W. DE W. MILLER.

THE Scoters form a group of sea-ducks allied to the Eiders, marked by their prevailing black plumage and their particolored and variously swollen bills. The unbarred plumage of the females, the unmodified syrinx, and the buffy instead of greenish eggs are other diagnostic features.

The six species are usually combined in one genus, *Oidemia*, with three subgenera. These have at times been recognized as full genera, as by Baird, Brewer, and Ridgway in 1884. Reichenow (1913) considers *Pelionetta* (the Surf Scoter) sufficiently distinct from the two other subgenera combined to stand by itself. The unnaturalness of the latter arrangement is obvious in view of the facts cited below, and on the other hand I believe the recognition of three genera is unnecessary.

The form and feathering of the bill is quite unlike in the three subgenera — indeed no two species agree in these respects and for this reason the value of these differences as generic characters is very doubtful. However, three well-marked structural characters that have been more or less lost sight of, though all three are described by MacGillivray in Audubon's *Birds of America*, together with a number of other peculiarities, render it necessary, in my opinion, to restrict *Oidemia* to *O. nigra* and *O. americana*. *Melanitta* will then be used generically for the three White-winged Scoters, *M. fusca*, *M. deglandi* and *M. carbo*, and also for the Surf Scoter, *M. perspicillata* (subgenus *Pelionetta*).

Dr. Dwight, in his article in 'The Auk' (July, 1914, p. 293) has called attention to the emarginate outer primary in true *Oidemia*, a character strangely forgotten for many years. Correlated with this is another structural peculiarity that has been largely overlooked though mentioned by Coues in his 'Key.' In *Oidemia* there are sixteen tail-feathers, in *Melanitta* and *Pelionetta* only fourteen. Further, in the first-named the tail is longer and much more graduated, the feathers narrower and more pointed.

The third difference is in the form of the trachea. In the males



of *Melanitta* and *Pelionetta* the trachea is abruptly enlarged at its upper end and again at a point some distance above its bifurcation into the two bronchi. At least the lower of these two bulbous enlargements is possessed by many other genera of Ducks. Both however, are wholly wanting in true *Oidemia*, which also differs in having the bronchi somewhat enlarged. After describing the larynx of *Oidemia americana*, MacGillivray (Birds of America, 1843, p. 346) remarks: "It is indeed very remarkable that this species, so nearly allied to the Velvet (White-winged) and Surf Ducks, should present no dilatations, either at the upper larynx, or in the course of the trachea, as are seen in them \*\*\* The trachea of the male of this species merely resembles that of the female of the other species." MacGillivray states that the trachea of the Surf Scoter "presents the same structure as that of the Velvet Duck," but several differences of specific or subgeneric value are pointed out by William Thompson in the 'Annals of Natural History,' XVIII, 1846, p. 370, and by Herbert Langton in 'The Zoologist' for 1881, Third Series, Vol. V, p. 59. In the first-cited article the trachea of the Surf Scoter is figured, drawn to the same scale as that of the Velvet Scoter (*M. fusca*) in Yarrel's British Birds, Vol. IV, p. 480. The trachea of the Black Scoter (*O. nigra*) is figured on p. 475 of the latter work.

All the Scoters agree in having the syrinx itself normal, while according to Beddard, in all other ducks, so far as known, with the exception of the very different *Biziura* (and probably *Erismatura* also) this organ is modified into a remarkable, usually asymmetrical, bony or partly membranous box. In *Somateria* (*S. mollissima*) the presence of a very slight symmetrical enlargement of the syrinx indicates the relationship of the *Somateriæ* with the *Oidemiæ* (Beddard, The Structure and Classification of Birds, pp. 463-4).

The diagnostic characters of the two genera of Scoters as above limited may be summed up as follows:

*Oidemia*.—Bill smaller, commissure shorter than inner toe with claw; basal portion of maxilla bulbous-enlarged above but scarcely laterally, the swelling bare; outline of facial feathering nearly straight, not angled.

Tenth (outer) primary, in adult male, greatly attenuated, shorter than the eighth. Tail relatively long, decidedly more than twice

the length of tarsus; graduated for decidedly more than one-half its length, and for considerably more than length of tarsus; consisting of sixteen feathers, which are narrow and conspicuously pointed. Plumage in the adult male wholly black (but much paler on inner webs of primaries); in immature birds of both sexes the upper half of the head is dark brown, the lower half whitish. Feet and nail of both mandibles black. Iris dark brown.

*Melanitta*.—Bill larger, commissure longer than inner toe with claw; basal half of maxilla much enlarged both above and laterally, the swelling more or less extensively feathered either on top or sides; outline of facial feathering strongly angled.

Tenth (outer) primary normal, longer than the eighth. Tail relatively shorter, decidedly less than twice length of tarsus; graduated for less than one-half its length, and for less than length of tarsus; consisting of fourteen feathers, which are rather broad and moderately short-pointed.

Plumage in the adult male black variegated with white; in immature birds of both sexes the head is dark brown with two white blotches on each side. Feet red, nail of both mandibles yellow. Iris white.

In comparison of bill with inner toe, the claw is included in measurement of latter contrary to the diagnoses in the British Museum Catalogue and Ridgway's Manual, as it is found that in true *Oidemia* the length of the commissure instead of being much less than inner toe, without claw, as stated in these works, is scarcely if at all less.

*Pelionetta* differs conspicuously from *Melanitta* in the form of the bill, the lateral swelling being more developed and wholly bare, and the sides of the maxilla tapering instead of widening to the tip. The outer primary is decidedly narrower than the very broad outer remex of *Melanitta* and the tail is distinctly longer and more graduated, there being in both of these characters an obvious approach to *Oidemia*.

The differences between *Oidemia* and *Melanitta* (including *Pelionetta*) enumerated above are certainly of as great taxonomic value as those on which *Lophodytes*, *Arctonetta*, *Nomonyx* and *Charitonetta* are based; and if these are maintained the old genus *Oidemia* must be dismembered. Whether *Pelionetta* should be

generically separated is a difficult question to decide. Agreeing, as it does, in most essential characters with *Melanitta*, I believe that it is best considered congeneric with the latter so long as *Erionetta* is included in *Somateria* and *Marila* is used in a broad sense.

Of the genera of Sea Ducks recognized in the A. O. U. 'Check-List,' perhaps the most doubt has been attached to *Charitonetta* which is not separated from *Clangula* by British authors. MacGillivray, however, states (*t. c.*) that in the Bufflehead the trachea has "scarcely any appearance of dilatation at the part which is so excessively enlarged in the Golden-eyed Duck, which in form and habits is yet very closely allied."

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## THE BREEDING OF THE PRAIRIE HORNED LARK AT HATLEY, STANSTEAD COUNTY, QUEBEC.

BY H. MOUSLEY.

THE Prairie Horned Lark belongs to one of those progressive families of birds, which by their pushing character have so adapted themselves to their natural surroundings as to have increased their breeding range of late years from the central part of the continent even to eastern Massachusetts in 1903, at least this is the generally recognized opinion, I believe, amongst most authorities, although there are others again who contend that the bird has always occurred in small numbers throughout the northeastern states, but that it has passed unnoticed until recent years, when the increase of field collectors has drawn attention to its presence. However this may be, there are other traits in its life history which mark it out as a bird of distinction, the finding of whose nest and eggs is always looked upon by the field student as a pleasurable event. It was only during the spring of the past year, 1915, that I succeeded in finding it breeding at Hatley, although I had been on the

lookout for it for some few years previously. It is the earliest of the small song birds to nest, eggs having been found in some parts of western New York in late February and early March, but here judging from the four nests I was fortunate enough to find, the date for fresh sets appears to be from the second to the third week in April, at which time the ground is generally more or less covered with snow. Such was the case when I found the first nest on April 14 only 240 yards from my house, in a dry undulating field. It was a most interesting one in every way, composed outwardly of soft dry grasses, and heavily lined inside with the plant down and flower heads of the Pearly Everlasting (*Anaphalis margaritacea*). The hole in which it rested had partly been scooped out in a bed of Hair-cap moss (*Polytrichum commune*) which formed the back and sides, the front or south side being clear and the ground sloping gently away. Some little portion of this sloping ground right up to the edge of the nest had been banked up and paved with small pieces of cow-chips varying in size from  $\frac{3}{4} \times \frac{1}{2}$  inch to  $1\frac{3}{4} \times 1$  inch. From a careful count made of these I found there were 49 in all, besides 8 small pieces of lichen. I am not aware that anything has been written on this subject of paving with regard to the present species, but Prof. Silloway in his 'Birds of Fergus County, Montana,' 1903, I believe first made the fact known to science in the case of the Desert Horned species; and the Rev. P. B. Peabody in a most interesting article in 'The Warbler' (Vol. 2, 1906, pages 20-27) substantiates the fact, and gives a photo of a nest of the Desert Horned Lark showing this paving. In this same article he goes on to say "It was impossible however to conjecture whether or no such clods had been added at varying times after the first completing of the nest." This point as we shall see later on I am glad to be able to clear up, at least so far as regards the one case that came under my notice of the Prairie Horned Lark. I ought perhaps to mention here that it was during the winter of 1914 that I read the above article, and when I found the nest already mentioned above, the thought occurred to me that now was my chance perhaps of finding out at what time during building operations these chips were added. With this object in view I decided to take the set of four eggs and keep a very careful watch on the birds afterwards, in the hope of catching them at their second venture.

How lucky I was will be gathered from a perusal of the following little time table as it were.

1915

- April 14 First set of eggs taken at 2 P.M.
- 15 Larks started second nest, and at 4.30 P.M. the hole was excavated, the female being at work upon it when flushed. It was on the top of a little mound with no cattle droppings near, which had been the case with the first nest, from which it was distant 60 yards.
- 16 12 A.M. Five pieces of cow-chips laid in place on south side of hole, also one piece of lichen.  
4.30 P.M. Eleven more chips added.
- 17 12.30 A.M. Nine more chips added, also foundation and rim of nest just started.  
5 P.M. Foundation and rim of nest well advanced, but no more chips added.
- 18 12 A.M. Nest full of plant down and flower heads of pearly everlasting not yet padded into place.  
5.30 P.M. Plant down now all padded into place forming a most beautiful nest.
- 19 11.30 A.M. One egg in nest, both birds noted in field but at some distance away.
- 20 11.30 A.M. Two eggs in nest, female left on my approach and flew away.
- 21 11.30 A.M. Three eggs in nest, got quite close before female flushed off.
- 22 11.30 A.M. Four eggs in nest, the female again only flushing off at my near approach.

The four eggs were practically counterparts of the first set, being minutely and evenly speckled all over, and somewhat zoned about the larger end. In the above instance it will be seen that not a vestige of building material was brought to the nest until the whole of the 25 pieces of cow-chips, and one of lichen had been laid in place, but pending further data it would hardly be wise to assume that this is invariably the case.

The next nest to come under my observation was found on April 21 by flushing the female from a set of four slightly incubated eggs. This nest was situated on a high sloping hillside about  $1\frac{1}{2}$  miles

from my house, and close to the Hatley cemetery, and was of similar construction to the other two, except that the paving consisted of only five pieces of cow-chip and two of lichen, and the lining in addition to the down and flower heads of the pearly everlasting consisted of four little pieces of paper, two small thistle heads, and some thistle down. It was in a hole alongside a stone, the latter forming the back or north side of the nest, the paving being on the south side as in the case of the other two. The fourth and last nest was found on April 30 and contained three young birds partly fledged. It differed in many ways from the other three, being situated in a low damp meadow, instead of a high and dry one (as in the case of the others), the bird in this matter apparently using very little judgment, and yet again as regards the paving it seemed to have displayed that marvelous instinct which birds seem at times to be endowed with, for instead of using cow-chips as a paving, which in such a wet spongy place would have been of little good, it resorted to the use of very thin and flat stones ranging in size from  $\frac{1}{2} \times \frac{3}{8}$  inches to  $1 \times \frac{3}{4}$  inches, of which there were thirty. The nest was nine inches from a good sized stone and forty yards from the main road to Stanstead; and I shall always remember the circumstances under which I came to find it, in as much as it disproves the fact so positively asserted in all the best text books that this species never perches in trees. It was while returning from Hatley somewhat late in the afternoon of April 29 on the above mentioned road, that a bird got up some distance ahead of me, and flew into a good sized ash tree which stood at the side of the road. As it arose I felt sure it was a Prairie Horned Lark, but when it perched in the tree, I almost dismissed the thought from my mind, for had I not read that these birds never made use of trees to perch on? However, as the bird allowed me to get opposite the tree and having a pair of field glasses, I took a careful look at it, and sure enough it turned out to be a male Prairie Horned Lark with food in its beak, which pointed to the fact that a nest of young was probably not far off, so I concealed myself, but it was rather a long time before the bird left the tree and alighted on a large boulder in the field, from which it entered the grass. After allowing a short interval to elapse I advanced, when the bird flew up, but I failed to discover any traces of a nest or young birds. As it was now getting



late I decided to leave the place and return again early the next morning. As I did so the bird again got up from the road side and flew into the tree, and as there was a small copse about 150 yards away, I secreted myself in it and awaited developments. It was not long before the bird again flew down on to the large boulder, (as on the previous evening) and disappeared in the grass, but owing to the ground taking a sudden dip, I found it would be impossible to follow the bird to the exact site of the nest from where I was concealed, and that it would be necessary for me to either get on to the other side of the road (where there was unfortunately no cover) or hide at the foot of the ash tree, around which there was some thick underbrush. However, as I wanted to further investigate the habits of this pair of birds at the nest, I remained where I was for about an hour, during which time I watched both parents come and go with food many times. Their method of procedure was exactly the same on every occasion, and never once did they approach the nest direct, always first alighting in the top of the ash tree, and from there flying down on to the large boulder, and then walking in the grass to the nest, which I found out later on was only some few yards away. Having now thoroughly satisfied myself that under certain conditions Prairie Horned Larks will perch in trees (although this pair of birds may be the exception which proves the rule), I decided to take up my position at the foot of the ash tree and discover the nest. I therefore waited my opportunity until both birds were away, and then concealed myself as well as I could in the scrub surrounding the base of the tree. Here I was able to get a full view of the hollow into which the birds had always disappeared, and I had not long to wait before the male alighted in the tree top, then flew down to the boulder as before, from which it walked direct to the nest, and I was able to mark the exact spot. No wonder on the previous evening I had failed to locate the nest, for of all the most perfect cases of a nest and its contents conforming to their natural surroundings this was the best I think I have ever come across, for on going to it again later on in the day it took me some few minutes to pick it out, although I knew almost the exact spot where to look. I visited the nest again on May 4, to find the young larks had left, but I discovered one in the grass not far off, and soon had the male (by the way the male

seemed to do the major part of the feeding) close round me in a most excited state, and as I continued to retain the young one, he eventually flew up into the ash tree, where he remained until I released it, and removed from the locality. The average dimensions of the four nests found are as follows, viz: Outside diameter  $3\frac{3}{4}$  inches, inside  $2\frac{1}{4}$ , outside depth  $2\frac{1}{2}$  inches, inside  $1\frac{1}{2}$ , and it will be noticed all were lined with the plant down and flower heads of the Pearly Everlasting, a plant which grows very abundantly here, and is much used by many species of birds for nesting purposes, especially by robins who use it largely in the foundations of their nests.

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#### NOTES ON THE EIDER.<sup>1</sup>

BY JOHAN BEETZ, PIASHTÉ BAY, CANADIAN LABRADOR.<sup>2</sup>

TRANSLATED FROM THE FRENCH AND ANNOTATED

BY CHARLES W. TOWNSEND, M.D.

#### Plate XV.

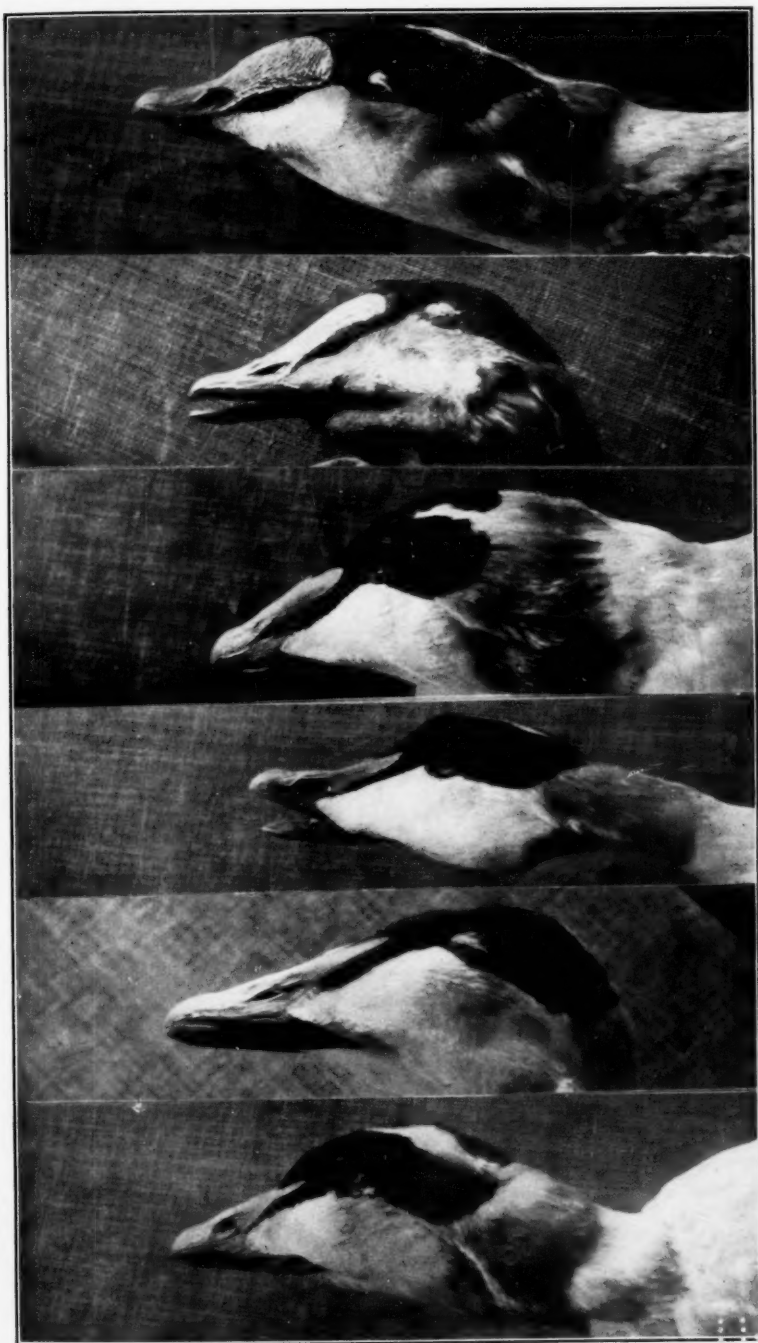
THE eastern coast of North America possesses four well defined species of Eiders, although naturalists recognize only three. These are the American Eider (*Somateria dresseri dresseri*) with large rounded membranous processes extending backwards from the beak; the Unclassed or Intermediate Eider<sup>3</sup> with semi-rounded processes; the Northern Eider (*S. mollissima borealis*) with pointed processes, and the King Eider (*S. spectabilis*).

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<sup>1</sup> Read before the Nuttall Ornithological Club, Dec. 20, 1915.

<sup>2</sup> M. Johan Beetz, who has resided for twenty years at Piashté Bay mid-way between Esquimaux Point and Natashquan — now officially known as Bay Johan Beetz, — is a Belgian by birth and a college graduate. With Mr. A. C. Bent I had the pleasure of visiting him in the spring of 1909, and I spent five days at his house in June, 1915. He is a keen observer and has made an interesting and valuable collection of birds of the coast. He has kindly given me permission to translate and annotate this paper on the Eider. C. W. T.

<sup>3</sup> See note at the end of the article.



LABRADOR EIDERS.

1000  
1000  
1000  
1000  
1000

The number of eggs in a set of the Eider varies from 6 to 10 accidentally 12. If the eggs of the first laying are taken, the ducks lay a second set of four or five eggs, and sometimes a third of two or three eggs. The first set are well covered with down, which the female plucks from her breast in making the nest. The second laying, when the nest has been destroyed, has very little down in the nest, while the third has none at all, but the eggs are covered with moss, leaves and finely broken little branches.

The three layings here on the north coast of the Gulf of St. Lawrence are between the 10th of May and the 25th of June; very rarely the Eider lays after that date. The female lays an egg every 24 hours until the set is completed. She does not begin to set until 24 hours after the last egg is laid. The duration of the incubation of the Eider is 25 or 26 days. The female Eider does not nest until the age of two years, some not until a year later. The male Eider rarely mates before attaining full adult plumage at three years.

If the female Eider is suddenly frightened from her nest during incubation and has not the time to cover the eggs with down, the bird lets fall on her eggs green and oily excrements totally different from the ordinary excrements<sup>1</sup> of the Eider, and of a frightful odor, so strong that an egg touched with it is refused and even discarded with disgust by the hungriest dog. Even foxes, who love these eggs, will not touch them until the liquid is completely dry on the shells. It then falls off as an unobjectional powder. Ten or fifteen minutes are needed for the complete drying process. If the bird can foresee the danger and has time to prepare — a minute or a minute and a half are necessary — she covers the eggs with down, and then with her beak and feet she covers the whole with moss, leaves and surrounding herbage in so perfect a manner as to completely conceal the nest and deceive the most trained eye.

The first two species of Eiders — the American Eider and the Unclassed Eider — have been in the habit of nesting on the isles

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<sup>1</sup> The ordinary excrements of the Eider are formed, as large around as the middle finger and an inch or an inch and a half long. They are composed chiefly of the comminuted shells of the blue or edible mussel, and are to be seen everywhere on the rocky islands and in the neighborhood of the nests. The bird, frightened from the nest, ejects liquid excrements in the same reflex manner as herons and other birds. The excrements do not always touch the eggs but may be deposited on the ground some distance from the nest.  
C. W. T.

of the Gulf, but since for some years the nesting females have been continually disturbed, and their eggs taken by fishermen and even by strangers coming in egging schooners, these birds have begun to diminish rapidly in numbers. Happily for the last two or three years, this destruction has stopped of itself by the birds' natural instinct for conservation in the following manner: The fox, who has been in the habit of taking for the purpose of feeding its young, the eggs of birds nesting on the main land and on islands easily reached at low tide, has gradually diminished in numbers or at least has retreated to the interior on account of the intense winter hunting for skins, and the summer hunting for live animals for breeding purposes. A large part of the Eiders have profited by the retreat of the fox, and have adopted the habit more and more every year of nesting on the mainland on the borders of the little fresh water lakes so abundant along the coast, or on the islands in these lakes. If the lakes are near the seashore the female uses little paths she has made; if at a distance, she passes too and fro on the wing. On the main land she has more space, conceals her nest better and man is rarely able to rob it. On this account in place of a diminution in numbers of the Eider there is already an increase, and in a few years, when the greater part of the Eiders have adopted the habit of nesting on the mainland, the increase will be very rapid.<sup>1</sup>

Immediately the young are dry after hatching, the female conducts them to the salt water. At the approach of danger — a boat

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<sup>1</sup> I am afraid M. Beetz is too optimistic in this. As a result of my own observations I have come to the conclusion that the Eider not only is rapidly diminishing in numbers but that in many places it is almost exterminated, and that its numbers are not kept up by a transference of its breeding habitat to the mainland. Wherever fishermen or Indians are found, the islands are nearly cleared of Eiders, and the small number of birds about, show that they are not nesting concealed on the mainland. For example in the transit of 18 miles through the Petite Rigolette I saw only one flock of thirty and those were near the entrance. In the great lake-like expanse at the mouth of the St. Augustine River, where Eiders up to a comparatively few years ago bred in large numbers on the rocky islands, hardly any were to be seen and none at all in the little lakes of the mainland. The only freshwater lakelet on the coast where I found a female Eider and her brood of ducklings was on the large island of Wapitagan — practically a part of the mainland. At Piashte Bay and Natashquan the Eskimo dogs are confined in the summer, but at the other settlements to the eastward the dogs roam unrestrained, and are as bad as foxes in finding and devouring eggs and young. But even in regions away from any settlement and its dogs I have never found any evidence of the Eider nesting on the mainland except in trifling numbers. C. W. T.



or a bird of prey — the female Eider, who has her brood with her, goes on ahead and even tries to draw on herself the danger by simulating a wounded bird and leading the enemy from her young. All this time she emits croaking cries resembling *Croou Croou Croou*.

In some years weasels pass the summer on the shore and make great destruction of the eggs of the Eider.

But the greatest destroyer of the Eider is without doubt *Larus marinus*, the gull with the black mantle, called English Gull or Great Black-backed Gull, which during the years when there are not enough little fish to feed its young, kills with ease all the young Eiders that it finds. Flying at a great height this Gull sees its prey from afar, and as the young Eider (up to about ten days of age) dives but a very short distance, by sailing just above the water the Gull is able to watch it constantly, and follow it, until, when the young is so fatigued that it is unable to dive more, the Gull seizes it with its powerful beak. If during the journey to the nest, the young still struggles in the beak, the Gull carries the duckling to a height of 30 or 40 rods, and, calculating the strength of the wind, drops it on the rocks where it is killed. The Gull immediately follows and picks up the dead body.

In the same manner the Great Black-backed Gull breaks the mollusks whose shell is too hard to crush with its beak. I have seen in a very strong wind this Gull rise to a height of fifty rods, let lose its prey at more than twenty rods to windward of the rocks and have seen the prey fall directly on the rocks; often the rock is only three or four rods in circumference but never have I seen the bird make a miss. Happily for the conservation of the Eider this Gull is diminishing every year in numbers owing to the destruction of its eggs.<sup>1</sup>

*Migration.* The four species of Eiders mentioned above arrive in the spring time here on the north shore between the April 15 and June 15; in the last month, May 15 to June 15 — only the two northern species *S. mollissima borealis* and *S. spectabilis* pass. All

<sup>1</sup> The people of the coast do not need any argument like the above to incite them to exterminate this splendid Gull. The eggs and the young birds are excellent eating and are eagerly sought everywhere. Man is of course the chief destroyer of the Eider as of all the water birds of the Labrador Peninsula. If proper methods of conservation of the Eider were adopted there would be no need to fear the effect of the toll taken by the Great Black-backed Gull. C. W. T.

the species in the spring arrive from the south, pass by the west point of the island of Anticosti, strike the north shore at the Mingan islands, often as far west even as Godbout, and then descend the whole length of the shore, pass the Straits of Belle Isle and go north. In the autumn, in September, October and November only three of these species — *S. dresseri*, the intermediate species and *S. mollissima borealis* — return by the Gulf as far as Mingan and even Godbout and these strike the western point of the island of Anticosti to continue their migration to the south. Many of these species — partly the young hatched late — winter around Anticosti and on the north shore of the Gulf of St. Lawrence. The greater part of these that winter are the intermediate and Northern Eiders, very few of the American Eiders and none of the King Eiders. The migration in the autumn of the King Eider is by Newfoundland as well as by the eastern point of Anticosti. In certain winters many King Eiders stay about Anticosti.

It is a curious fact that between June 15 and July 15 on the highway of the north coast between Godbout and Chateau Bay all the male American Eiders leave their females and migrate between Chateau and Cape Chidley. Here the spring and the period of nesting are each a month later, and it would seem to be a possibility that by the mating of the male *S. dresseri* with the female *S. mollissima borealis* there would be created a mixed species, not classed, intermediate with membranous processes semi-rounded. This should be an easy and very interesting subject to investigate.

*Moult.* All the species of Eiders male as well as female do not reach full adult plumage until the age of two years and two months, that is to say until August of the third year after their hatching out. All young Eiders have four moults of the body feathers and one moult of down before assuming the complete adult plumage. The first moult takes place in September when they are about four months old; the second moult occurs the following spring in May when they are about eleven months old; the third moult occurs in the September following at the age of about sixteen months; the fourth moult occurs in June when the subject is about two years old; the fifth moult into the complete adult plumage takes place after the end of August or the beginning of September when the bird is two years and two months old, and is complete at the age of about two years and three and a half months.

The moult of the down occurs in September of the first year at the age of four months; the second moult of the down begins in June at two years of age and continues all the summer and is complete at the end of August.

The adult Eider has two annual moults, the first in April and May and is partial as it does not include the large wing and tail feathers; the second moult occurs during the last of August and the first of September and is complete including the large feathers of the wings and tail.

As a food the flesh of the Eider is good for the table fifty days after it is hatched and continues to be good until the age of one and a half years. During this period the young bird eats only prawns and much herbage. After a year and a half the flesh has an oily taste due to the fact that the bird takes at a great depth molluscs and little fish. The very old subjects do not resort to the deep water but return to the food of the young. Their flesh loses its oily taste but is firmer than that of the young.

*Note.* A study of the adult male specimens sent me by M. Beetz, as well as those in the Museum of Comparative Zoölogy at Cambridge, shows all degrees of gradation in the size of the membranous processes from the long, broad rounded ones of *dresseri* to the shorter acute ones of *borealis* as is to be seen in the accompanying photograph. The amount of green also varies. In typical *dresseri* it is extensive on the sides and back of the neck and forms a border to the dark cap, extending forward beyond the eye. In typical *borealis* it is less extensive on the sides and back of the neck and does not border the dark cap. In M. Beetz's intermediate form the amount of green varies, and it does not border the dark cap. Baird, Brewer and Ridgway<sup>1</sup> were unable to find any other differences between *dresseri* and *borealis* except in the size of the membranous processes. They say "the extent of the green of the head is quite variable, according to the individual." Coues<sup>2</sup> speaking of the membranous processes in the two species says: "The difference is obvious in comparison of specimens, and may

<sup>1</sup> The Water Birds of North America. 1884, Vol. II, p. 77.

<sup>2</sup> Key to North American Birds. Fifth Edition, 1903, Vol. II, p. 904.

now be held of specific value, as no intermediate specimens are forthcoming." It remained for M. Johan Beetz to point out the fact that there is an intermediate form between *dresseri* and *borealis*. Instead of this form being a new species, as M. Beetz suggests, it seems to me, however, that his important discovery shows that *dresseri* intergrades with *borealis*, and that like *borealis* it should be classed as a subspecies of *mollissima*. If this view is accepted this Eider should be reduced from its specific station and be listed as *Somateria mollissima dresseri*. A study of the breeding Eiders about Hamilton Inlet, the supposed dividing line between the ranges of *borealis* on the north and *dresseri* on the south, would be of interest.—C. W. T.

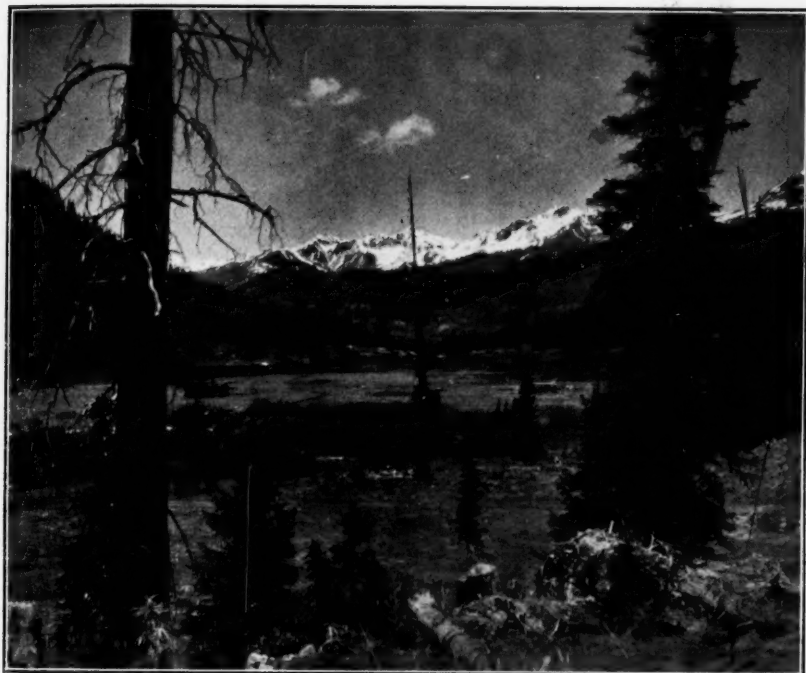
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#### NOTES ON THE BIRDS OF THE ELK MOUNTAIN REGION, GUNNISON COUNTY, COLORADO.

BY EDWARD R. WARREN.

##### *Plates XVI-XVIII.*

THE region covered by the following notes is the northwestern portion of Gunnison County, which is in the western third of the State, about midway between the north and south boundaries. The county is of irregular shape, and the easterly boundary is the Continental Divide, with several summits attaining an elevation of more than 14,000 feet above sea level. The Elk Mountain Range branches from the Divide with a somewhat northwesterly trend, and forms the northerly boundary as far as Snow Mass Peak, whose elevation is 13,970 feet, and whence the line runs due west over an exceedingly rough country, as the writer can testify from personal acquaintance, to the Huntsman's Hills, a comparatively low divide; thence northwesterly along the Hills to intersect the summit of the Grand Mesa, which also forms a part of the boundary for a short distance. The west boundary of the County is the



1. GALENA PARK, 10,300 FT. SNOW MASS PEAK, RIGHT CENTER.  
2. HILLSIDE RANCH AND LAKE.

✓

1841  
1842  
1843  
1844  
1845



meridian 107°-30' West. The region within this area comprises the greater portion of the Elk Mountain Group or Range, most of whose summits are over 12,000 feet in altitude, and from that to nearly 14,000; in fact Maroon Peak is 14,126 feet.

When one is on a summit like that of Mt. Emmons, which, though comparatively low — but a little over 12,000 feet, gives an extended view in all directions, he is impressed by the panorama spread before him, of mountains everywhere, from the south around to the southeast, only the southeasterly arc of the circle has but a few high peaks. The rest is a mass of mountains and all is a region of grand and wonderful scenery, if one has the time and facilities for seeing it, for much of it must be explored on horseback or afoot if the traveler wishes to get to some of the best things.

The general elevation of the region will be understood if the reader is told that Crested Butte is 8,900 feet, Marble 7,950 feet, and the junction of the Muddy and Anthracite Creeks, which form the North Fork of the Gunnison, about 6,500 feet. Most of the country which the notes refer to is above 9,000 feet. The greater part of the region belongs to the Gunnison River watershed, though Rock Creek or Crystal River, in the northern part, drains into the Grand River. With the exception of the agricultural and coal lands most of the area is in the Gunnison and Sopsis National Forests.

Most of the region under discussion has rather long winters, with deep snows, and cool summers, sometimes with considerable rain. The mercury often goes well below zero in winter, though the dry atmosphere makes it more bearable than it might otherwise be, at least out of doors. With the deep winter snows, and high elevations, the snow often remains on the upper parts of the mountains well into the summer, some deep banks often persisting until the snows of the next autumn fall.

The life zones of most of the region treated of in this paper are the Canadian, Hudsonian, and Arctic-Alpine. There is a little Transition south of Crested Butte, and the country on lower Muddy and Anthracite Creeks and that about Marble, is also Transition. Timberline is at about 12,000 feet, and the Hudsonian covers about 2,000 feet below this. The variety of trees in the Canadian and

Hudsonian zones is quite limited, comprising Lodge-pole Pine, Douglas's Fir, Engelmann's Spruce, Balsam, Aspen, and a few species of Willows. Wild flowers of many species grow in profusion, making of the open parts of the mountainsides, even above timberline, veritable flower gardens. Engelmann's Spruce is the tree which reaches the highest limit, and the stunted trees at timberline are this species. My notes bearing on the breeding ranges of the various species of birds are rather meagre, but such as they are go to show that most of the land birds occupy parts at least of both the Hudsonian and Canadian when nesting. However, I have never seen the Mourning Dove, Magpie, Long-crested Jay, Western Tanager and Yellow Warbler nesting above the Canadian and most of these are restricted to the lower part of that zone. The Rocky Mountain Jay, and presumably the Clarke's Nutcracker, breed only in the Hudsonian, while the Ptarmigan, Brown-capped Rosy Finch and Pipit breed in the Arctic-Alpine.

While a great portion of the years from the spring of 1882 until the autumn of 1902 were spent in the region, sometimes the summer only, and sometimes the entire year, I did but little ornithological work during most of that period, and kept no notes until the last four years of that time, and then not as systematically as might have been desirable. But little bird collecting was done, mammals and photography occupying most of the time I could give from other pursuits to such work. Since 1902 I have made four visits to the region, the last in June, 1915, when I spent practically the whole of that month there, devoting most of my time to bird study, with the result of filling in many gaps in my data, and yet leaving much to be learned. The broken character of the country renders it difficult to make anything like a thorough, detailed study of its bird life, unless one is able to devote practically his whole time for several seasons to the work. These notes make no pretense of being complete; I have worked them up as best I could, knowing it to be somewhat unlikely that I would do much more there myself and thinking they would at least serve as a basis for future work on the part of others.

The area covered may be roughly described as that portion of Gunnison County north of a line 8 miles south of Crested Butte, between East Brush and Cement Creeks on the east, and Muddy

Creek on the west. This does not imply that I have worked that whole region, but I have notes on something from almost every portion of it, and much of my data is applicable to the whole, as a matter of fact to the whole of the northern part of the County. I have been somewhat doubtful as to the advisability of including the region about Muddy Creek, or "the Muddy," as it is colloquially termed, but I spent nearly the whole of one summer, and portions of the two succeeding summers there, surveying, and gained some interesting information in spite of working strenuously, which it seems unwise not to use. Perhaps if I had not worked so strenuously at surveying I might have made more bird notes, but when the surveying notes had been written up after supper in camp, I was usually ready for bed, and too tired to think about anything else.

In the last thirty odd years there has been considerable change in the region. The years 1880-81 witnessed a big mining boom in Gunnison County, and the Elk Mountains had their share of the mushroom prosperity which accompanies such things. Irwin, Gothic, and Scofield were quite good-sized places, the former with several thousand people. In 1882, when I first went there, the boom began to fall off, in fact there was no boom. Fewer people came in, and these dwindled away year by year, until now these towns are nearly deserted, and most of the buildings have been taken down for the lumber in them and carried away. Crested Butte was also settled in the boom days, but it had coal mines to support it, these were an inducement for the railroad to come, and for many years large shipments of coal and coke were made, and are still going on. In those early days practically everything was dependent on the mining industry, both coal and metal, and there were but few ranches. Now most of the desirable land in the East and Slate River Valleys is occupied, the principal, one may say only, crop, being hay.

With the lapse of time there has also been a change in the character of the population. Once the miners were practically all English-speaking, if not American-born. When the coal mines were opened many coal miners of British birth came, some from eastern states, others directly from the "old country." It was not long, however, before southeastern Europeans, commonly called Austrians, as

well as Italians, began to arrive, and now they are a noticeable element of the population of Crested Butte. As elsewhere in the United States, these foreigners are exceedingly destructive to bird life. I have made mention of specific cases under the species involved, but wish here to make mention of a condition which is perhaps new or unusual.

As everyone knows, Colorado, in the latter part of 1913 and the earlier months of 1914 was afflicted with a very serious coal miner's strike. While the disturbances were all in the southern Colorado coal fields, the miners at Crested Butte struck to keep their brethren company. Some small mines accepted the union terms and kept on working, but not employing many men. The Colorado Fuel & Iron Company's mine, employing some 300 men, remained closed and the men were out of work. I should state here that the company was getting ready to reopen the mine and resume operations in the summer of 1915, but that is something which takes time after such a long shutdown. These idle men, largely of the nationalities previously mentioned, being out of work and not earning any money, though it is safe to say there was not one who had not money laid by, took their guns and scoured the whole country killing for the pot anything which had a morsel of meat on it. They are tireless walkers and go everywhere so that nothing escaped them. This last June I noticed an entire absence of woodchucks in places where they used to be plentiful. No doubt exterminated by the miners. I think it likely, though I have no positive information to that effect, that this condition obtains all through the districts affected by the strike. It is certainly to be hoped that the Federal migratory bird law will be held constitutional by the United States Supreme Court, and that it will be vigorously enforced all through these coal mining districts where there is such a large population absolutely without any regard for bird life. The State deputy game wardens seem to take little interest in enforcing the law for the protection of insectivorous birds, though we have the excellent A. O. U. model law on our statute books.

A few words descriptive of the Hillside Ranch, which is the property of friends of the writer, often referred to in the succeeding pages, may not be amiss. The place is located at the base of



1. NORTHWARD FROM MT. EMMONS.
2. PART OF CRESTED BUTTE MT. FROM MT. EMMONS. HILLSIDE LAKE AT  
BASE OF MOUNTAIN ON THE RIGHT.

100  
100  
100  
100



Crested Butte Mountain, a little over two miles due east of the town of the same name, and has an elevation of about 9,200 feet. On the ranch is a lake of some thirty acres, partly natural and partly artificial, having been formed by enlarging by means of a dam a small pond which was fed by springs. This is the lake and ranch referred to as "Decker's" in Selater's *History of the Birds of Colorado*, but as the place is now known as Hillside Ranch, I have used that name in these notes. Most of the land is somewhat rolling and hilly, and was covered with sage brush before clearing. On the mountainsides immediately above are Douglas's Spruces and Lodge-pole Pines. About the lake shores and along the outlet from the lake, are many willows, as also on the lower part of the ranch where are a number of streamlets coming from springs on the hillside just above. All these willows are good haunts for birds and many nest among them. In the Douglas's Firs above the lake I found an Audubon's Warbler breeding. Robins nested everywhere about the place. In the open ground Vesper Sparrows and Green-tailed Towhees nested in the grass and about the sage brush. Some water birds come to the lake, especially in migration, but most of my records of these are very unsatisfactory.

My acknowledgments are due to the U. S. Biological Survey for the identification of certain birds, the insects collected on the snow on Mt. Emmons, and the contents of the stomachs of two Rosy Finches.

It should perhaps be stated that, unless otherwise mentioned, all spring and autumn dates refer to Crested Butte or the region about there.

**Colymbus nigricollis californicus.** EARED GREBE. "HELL-DIVER."—A common migrant, especially in spring. As many as 21 have been seen in a flock on Hillside Lake. I examined the stomachs of several killed on this lake in the spring of 1899; I was desirous of ascertaining if they were eating trout fry, of which there were many in the lake, but I found no indications that they were destroying the fish. What was in the stomachs was so much digested as to be practically unrecognizable, but I think it was largely crustacea and aquatic insects, of which there are many in the lake.

**Podilymbus podiceps.** PIED-BILLED GREBE.—I have but one record of this species, a bird seen on Nichols's Lake in October, 1899.

**Mergus americanus.** AMERICAN MERGANSER.—Two were shot on

Hillside Lake, October 28, 1899. When on Muddy Creek, in July, 1901, Adams and Hooker spoke of seeing a "Wood Duck" with a brood of young swimming in the creek. From the description they gave of the bird it appeared to be this species. They called it Wood Duck because it nested in trees.

**Anas platyrhynchos.** MALLARD.—Fairly common in migration about Crested Butte. Seen as late as October 14, 1905. In 1901 and 1902 the species seemed common on the numerous little ponds found in the high ground between Muddy Creek and Ragged Mountain, and were no doubt breeding there. November 2, 1901, three were seen on Muddy Creek, not far below the Botsford Ranch.

**Nettion carolinense.** GREEN-WINGED TEAL.—Not uncommon in migration about Crested Butte. Carl Bergman told me that a teal of some species raised a brood of young at the Hillside Lake in 1914, but he could not say if it was the present or the following species.

**Querquedula discors.** BLUE-WINGED TEAL.—Probably not uncommon in migration. I have one record for Marble, a freshly killed bird which I found dead in Yule Creek, October 4, 1902.

**Spatula clypeata.** SPOONBILL. SHOVELLER.—Has been taken at Hillside Lake.

**Marila americana.** REDHEAD.—I saw three which were killed on Hillside Lake, October 18, 1902.

**Erismatura jamaicensis.** RUDDY DUCK.—One was killed on Hillside Lake, May 31, 1899.

**Botaurus lentiginosus.** BITTERN.—I saw one which had been killed at Green Lake, above Crested Butte, October 22, 1900.

**Nycticorax nycticorax naevius.** BLACK-CROWNED NIGHT HERON.—One was killed near Crested Butte some time in May, 1915. I saw the mounted specimen. No one there had ever seen such a bird.

**Grus mexicana.** SANDHILL CRANE.—In 1901, '02 and '03 there were a few Cranes about the little ponds near Muddy Creek, already mentioned in speaking of the Mallard. June 5, 1903, C. F. Frey and myself found a nest with two eggs. A full description of this was published in the Condor, VI, No. 2, March, 1904, p. 39. The nest was on one of several tussocks of grass which lay more or less in a line on a mudbank or island, and made of swamp grass, irregular in shape, and about two feet across, a mere platform. On this lay the two large eggs, looking, as Frey said, like turkey eggs. While I was taking pictures of the nest on the seventh the parent birds, and the female (I suppose) especially, kept flying about, uttering their outlandish notes.

**Porzana carolina.** SORA.—One seen at Hillside Lake, September 23, 1900.

**Fulica americana.** COOT.—Common migrant about Crested Butte. I saw a "Mudhen" on Hillside Lake, June 20, 1915, and the people at the ranch had noticed it a few days previously.

**Catoptrophorus semipalmatus inornatus.** WESTERN WILLET.—

May 22, 1899, a flock of eight or ten birds came to Hillside Lake, of which four were secured.

**Actitis macularia.** SPOTTED SANDPIPER.—A common summer resident along the streams, both in the Crested Butte region and on Muddy Creek.

**Oxyechus vociferus.** KILLDEER.—A common summer resident in suitable places in the region about Crested Butte; my notes make no mention of it on Muddy Creek, though it should be there. June 21, 1900, young, apparently a day or two old, were seen with the parent on the East River road, near Brush Creek.

**Dendragapus obscurus obscurus.** DUSKY GROUSE.—A common resident, though much reduced in numbers during the past twenty years by persistent hunting, especially by the Austrians and Italians, most of whom have no regard for close seasons or game laws, and no scruples about killing a bird on the nest or with a brood of newly hatched young. It is found everywhere from the upper limit of heavy green timber down. June 20, 1900, a nest with seven eggs was found near the Jarvis Ranch on East River. June 5, 1902, a nest and four eggs were found near Deep Creek, at the base of Ragged Mountain. It was under a big log, just a depression with grass above it and lined with a few feathers. There must be considerable irregularity about the nesting of this species for one often finds broods of young of quite different ages at the same time in the same locality.

**Lagopus leucurus leucurus.** WHITE-TAILED PTARMIGAN.—The Ptarmigan is a fairly common resident living above timberline in the summer, descending to the valleys in winter when driven down by the deep snow. During the last four years of my residence at Crested Butte, from 1899 to 1902, I paid much attention to these birds, looking for them, studying and photographing them at every opportunity and at all seasons. In summer they are apt to be rather difficult to find as they are scattered about the mountain tops, often singly, or females with young, though one may run across a flock of male birds who are enjoying bachelor life while their wives attend to the family duties. The birds are often, one may say usually, remarkably tame. I have known a female to squat down on the ground and the young to get under her and to pay no attention whatever to me when I placed a camera on a rock close by, focussed, adjusted the shutter, and made several exposures. I have never been so fortunate as to find a nest, though I have spent considerable time in the search for one, but it is one of those things one finds by stumbling upon them rather than by search. In late summer the birds often go to some particular place for water once a day, usually the middle or latter part of the forenoon. This is when the last remnants of the preceding winter's snow have disappeared, for they will eat snow readily enough, and at extreme high altitudes springs are not at all common. The change to the winter plumage begins after the middle of September, and is nearly complete the last of October, and fully so the first week in November. The reverse change

begins in May, toward the latter part of the month. I cannot say just when they descend to the valleys in fall; no doubt it depends much upon the weather. I have seen them at timberline November 9, and at the same altitude early in May. In winter the Ptarmigan seem to prefer to frequent the creek bottoms which are overgrown with willows on whose buds they largely feed. In such places their tracks can be seen going from one clump of bushes to another, looking much as if a flock of chickens had been wandering about. In summer they seem to eat anything, insects, plant buds and seeds are all acceptable.

**Centocercus urophasianus.** SAGE GROUSE.—Rare in the region, coming but little farther north up East River than Jack's Cabin.

**Columba fasciata fasciata.** BAND-TAILED PIGEON.—There used to be a few Band-tails on the North Fork of the Gunnison, and on Muddy and Anthracite Creeks, also on the lower west slope of Ragged Mountain. I saw two May 27, 1901, a short distance west of the base of that mountain, while surveying, and had an excellent opportunity to observe them with the transit telescope.

**Zenaidura macroura marginella.** WESTERN MOURNING DOVE.—A common summer resident in suitable country up to 9,500 feet. In June, 1915, during four weeks of field work I saw this species but once, though I used to see it commonly in previous years in the very same localities where I was working this year. I ascribe this scarcity to the cause mentioned in the introduction, their slaughter by foreigners.

My earliest date is May 14, 1900, at Hillside Ranch, and latest October 9, 1910, at the same place, when one was seen. A nest with two eggs was found on Ferris Creek, June 17, 1902, and one with two half-grown young at Killian's ranch July 24, 1902, both of these nests being on the ground.

**Circus hudsonius.** MARSH HAWK.—Common, especially in autumn, when it is often seen hunting over the meadows; I am not sure if it breeds. Seen as late as October 14, 1905; one seen at Hillside Ranch, June 26, 1903.

**Accipiter velox.** SHARP-SHINNED HAWK.—One seen at Hillside Ranch, June 9, 1915.

**Buteo borealis calurus.** WESTERN REDTAIL.—Common summer resident. Earliest date of arrival April 1, 1901; latest autumn date October 19, 1905. This useful large hawk seems well distributed over the region, from the lower portions up to the highest mountains; it is especially abundant in autumn. In May, 1901, in the country between Muddy Creek and Ragged Mountain were several nests which I thought belonged to this species, though but one was actually occupied, and I saw a hawk perched on another nest, which, however, showed no signs of recent use. This was in a scrub oak about 12 feet from the ground, a mere platform of twigs. The occupied nest was in a dead Quaking Aspen, first noted May 24. Rifle shots fired at the nest failed to drive the sitting bird off, though some of the bullets tore through the twigs beneath her. The tree was cut down June 30. The nest contained a half-grown young bird, and there had been another which had died when very young, and whose dried-up body was in the nest.

The Italian miners, and possibly also the Austrians, eat every hawk and owl they can kill, and this species suffers with the rest. In the autumn of 1910, beside a cabin on the slope of Crested Mountain which had been occupied by some Italian timber cutters, I found a good sized heap of hawk and owl feathers, representing quite a number of birds which had found their way to the pot.

**Buteo swainsoni.** SWAINSON'S HAWK.—My only record for the region is one which I killed on Slate River, above Crested Butte, September 1, 1900.

**Archibuteo ferrugineus.** FERRUGINOUS ROUGHLEG.—Seen occasionally; my notes all refer to fall specimens. October 13, 1900, near Crested Butte, is my latest date. One seen at Scofield, 10,150 feet, October 12, 1902, in a snowstorm.

**Aquila chrysaetos.** GOLDEN EAGLE.—Not uncommon. I do not positively know of it breeding, but it was seen June 3, 1902, on Muddy Creek, and in Washington Gulch, July 22 of same year. It is also about in winter, at least to some extent, for one was caught in a coyote trap set near a dead horse December 13, 1901. It was liberated, and it or another was caught a few days later.

**Falco sparverius sparverius.** SPARROW HAWK.—A common summer resident. April 16, 1901, is my earliest date, and October 13, 1901, my latest. Rather frequently seen chasing larger hawks, such as the Redtail. I have seen two tormenting one of these, and once saw one Sparrow Hawk after three Redtails.

**Asio wilsonianus.** LONG-EARED OWL.—I have only two records of this species: one seen on the Gothic road, two miles from Crested Butte, September 7, 1900, and one found dead near Green Lake, September 20, 1900.

**Asio flammeus.** SHORT-EARED OWL.—I have never seen this species about Crested Butte, but have seen it on Muddy Creek. In June, 1903, one was in a dense thicket while my assistant was setting a corner there, and kept hanging about very close. I have some recollection of having seen it at other times, but no notes.

**Bubo virginianus pallescens.** WESTERN HORNED OWL.—Probably a common resident. I have seen it at Marble, Crested Butte, and on Muddy Creek.

**Glaucidium gnoma pinicola.** ROCKY MOUNTAIN PYGMY OWL.—One was seen on the high mesa west of Muddy Creek, July 22, 1901. I have never seen or heard of it in the Crested Butte region.

**Ceryle alcyon.** BELTED KINGFISHER.—Not uncommon along the streams in summer; probably breeds, in fact one was seen to enter a hole in a high bank above Muddy Creek, at Adams's ranch, July 15, 1901. September 6, 1902, is the latest date I have, at Hillside Lake.

**Dryobates villosus monticola.** ROCKY MOUNTAIN HAIRY WOODPECKER.—A not uncommon resident; have seen it at all seasons of the year; found up to at least 11,000 feet.

**Dryobates pubescens homorus.** BATCHELDER'S WOODPECKER.—Probably rare; I have but one record, a bird seen at the Hillside Ranch, January 12, 1909.

**Sphyrapicus varius nuchalis.** RED-NAPED SAPSUCKER.—A common summer resident, going to above 10,000 feet. Its favorite nesting sites appear to be dead aspens. June 20, 1902, a brood of young was seen flying about Hillside Ranch. A female collected June 6, 1915, at about 9,500 feet, was evidently breeding, its breast and abdomen being bare of feathers. July 8, 1900, while watching a flycatcher's nest, I saw a Red-naped Sapsucker, and possibly two, though I was not sure as to that, flying back and forth, and noticed that it went into a particular bunch of willows farther along the side-hill from where I was. When I got through with the flycatchers I went there and the Sapsucker flew out. Looking about I saw quite a number of the willow branches which had the bark perforated in circles and the bird was evidently going there after sap.

I have never seen Williamson's Sapsucker in the region, though it should occur there, and no doubt some other observer will find it.

**Asyndesmus lewisi.** LEWIS'S WOODPECKER.—Not uncommon in summer on Muddy Creek.

**Colaptes cafer collaris.** RED-SHAFTED FLICKER.—Moderately common summer resident all over the region; I have seen it as high as the timber extends, up to say 11,500 feet. My earliest date is April 13, 1901, at Crested Butte; latest September 28, 1910, on Brush Creek.

**Chordeiles virginianus henryi.** WESTERN NIGHTHAWK.—A common summer resident near Crested Butte, frequenting the open ground, especially in East and Slate River valleys. I do not think it breeds much above 9,000 feet in this region, for there is not much suitable country above that elevation, though it may wander much higher when hunting. July 9, 1903, two eggs were found at Pogna's ranch, East River; a dog flushed the bird and stepped on one of the eggs, which did not appear to have been much incubated. July 26, 1903, a ranchman showed me at his place on East River two young hatched within the preceding week. These were covered with a light grayish buff down, somewhat speckled, and were almost invisible on the ground. Two days later the only bird found showed considerable growth, and the wing quills showed a little. On cloudy days the Nighthawks are often seen hawking over the streams, and will fly so close to fishermen that they might easily be touched with a rod. In June 1915, they came about Hillside Lake in the evenings, evidently after the mosquitos and other insects which were abundant there.

**Selasphorus platycercus.** BROAD-TAILED HUMMINGBIRD.—Common summer resident. I saw a nest at Adams's ranch on Muddy Creek, June 13, 1901, with two eggs. It was saddled on a dead limb on a small cottonwood about five feet above ground, and was largely covered with lichens. The bird sat very closely, allowing me to come within a foot. June 23, there were two young in the nest, and July first they were nearly ready to fly. A Hummingbird came into the kitchen at Adams's; I caught



it and induced it to take some syrup; then it flew from my hand and went up a hole in the ceiling where I could not get at it. Coming down again an hour or two later I captured it again. It was either exhausted or frightened so that it seemed at the point of death, and I laid it outside on a block in the sun, where it soon revived and flew away. Perhaps it was playing possum.

August 3, 1902, I was about some clumps of willows at Hillside Ranch, when I saw a Hummingbird, and then more, four altogether, I think. A male was most in evidence; I was quite close to him, three feet, as he perched in the willow. His throat gave a fine display of color, in some lights almost black, again flashing lilac red, almost ruby. I thought at first they had taken shelter in those thick bushes from a shower which had just passed, but I saw at least one hover beside a twig and apparently pick up something from the bark; bees and flies were crawling over the bark, seemingly after the same thing; the bark of many of the twigs was perforated and girdled by sapsuckers; indeed, I had seen at least one fly away from there. Though I looked closely I could see nothing in the way of sap.

In June, 1915, Hummingbirds were seen several times at Hillside Ranch, about the catkins on the willows. The first half of the month these seemed to be their favorite feeding grounds; later I saw them about Larkspur and other flowers. I succeeded in taking several fairly good photographs of one bird at the willows. Sometimes this bird fed while poised on the wing, and again it would perch on a twig by the catkin and take what it wished.

**Selasphorus rufus.** RUFOUS HUMMINGBIRD.—Mr. T. A. Boughton of Marble told me of a Hummingbird which visited the flowers in his garden in 1914, and which from his description could have been nothing but a Rufous Hummer.

**Tyrannus verticalis.** WESTERN KINGBIRD.—Seen on Muddy Creek, but does not reach as high an altitude as that of Crested Butte. June 12, 1901, a pair were building a nest near my camp on the mesa west of Muddy Creek. It was on a partly burnt dead aspen, on a sort of shelf or niche on one side, about 25 feet above the ground. The nest was built and the eggs were laid during the time I was there, from the 12th to the 20th, at which latter date the bird was sitting.

**Sayornis saya.** SAY'S PHOEBE.—My only record is one seen about the corrals at Hillside Ranch, August 6, 1903.

**Nuttallornis borealis.** OLIVE-SIDED FLYCATCHER.—Summer resident, but I have little evidence on which to base a statement as to its abundance. I failed to see it in 1915 in many localities which I would consider well suited to it. One was seen at Pittsburgh, 9,500 feet, and one or two near the Hillside Ranch, possibly the same individual seen on different occasions.

**Myiochanes richardsoni richardsoni.** WESTERN WOOD PEEWEE.—I did not, for some reason, note this species near Crested Butte until 1915, when on June 8 I took one on the south slope of Crested Butte Mountain, at about 9,500 feet; this was a male and its breast was bare of feathers as

if incubating. A few days later I saw one or more at Hillside Ranch, and on June 15 a female was collected on the ridge north of Crested Butte Mountain among aspens. June 23 and 24 I saw the species at Marble. I should consider it a not uncommon summer resident and breeder, going at least as high as 9,500 feet.

June 28, 1901, I found a nest near my camp north of Deep Creek in the Muddy country; it was in an aspen tree about seven feet above ground, saddled on a small branch, and was constructed from the fine fibrous bark from dead aspens; it contained 3 eggs at the time. July 13 the young were showing pin feathers.

**Empidonax wrighti.** WRIGHT'S FLYCATCHER.—Summer resident; appears to be common to at least 9,500 feet. In 1900 I found three nests of this species, one at Hillside Ranch, one on the Irwin road west of Crested Butte, and one by the Gothic road not far from Gothic. Each of these nests contained three eggs. The first was found June 17, that near Gothic June 29, and the other July 2. That at Hillside was observed regularly, and the following data noted: June 24, eggs still unhatched; July 1, 3 young; July 8, young pretty well feathered and very lively; they were decidedly yellow below. The parent came to nest to feed young while I was close by; July 15, nest deserted.

At the nest on the Irwin road the young were just hatching July 9; on 19th were getting well feathered; July 23 I found the nest destroyed and the young gone, work of a cat, I suspect.

In 1915 this species was noted several times; one was collected at about 9,500 feet on the northwest slope of Crested Butte Mountain, June 15. June 10 I discovered an empty nest at Hillside Ranch, which at the time I supposed to be a MacGillivray's Warbler's, though the height from the ground, 7 feet, was quite unusual for that species, but a pair of the Warblers were about the willow thicket, evidently having a nest there, and I saw the female flush from so close to the nest that I thought she came from it. When I found the nest to be empty I at once left it without any further careful examination, not wishing to chance causing the bird to desert the nest. On the sixteenth I thought the set of eggs should be complete, so went to the nest again. The Warblers were about as before, but when I climbed to the nest and found two pure white eggs instead of the spotted ones I had expected I saw my error and after examining the nest decided it was a Flycatcher's. That was in the morning. In the afternoon as I passed by a bird was on the nest, but so much above me and in such a position that I could not see much more than the top of her head and a whitish eye ring; she might very well have been a female MacGillivray's with the view I then obtained. The morning of the 18th she was on the nest again, sitting very close, even staying on when I cut twigs close beside the nest which interfered with photographing. The nest then contained four fresh eggs. The nest, eggs, and female were collected, and are now in the Colorado College collection. The nest is constructed almost entirely of bark fibre, lined with a little hair, soft vegetable material, and a



1. NEST OF WRIGHT'S FLYCATCHER. 2. NEST OF MCGILLIVRAY'S WARBLER.

1000  
1000  
1000  
1000

few feathers. I noted a few breast feathers from a Robin among the latter. The outside diameter of the nest was  $3\frac{1}{2}$  inches; the inside 2 inches; the depth outside approximately 3 ins., being quite irregular; and inside  $1\frac{1}{2}$  ins. It was in some rather large willows, built in a fork made by the trunk and a small branch.

**Otocoris alpestris leucolæma.** DESERT HORNED LARK.—A common summer resident, living in the open valley, and also above timberline on the grassy slopes. The time of arrival in the spring no doubt varies with the season and amount of snow. The winter of 1901-2 was rather a mild winter, with little snow and early spring, and February 24, 1902, a Horned Lark was seen by the roadside below the town, though the snow had not yet gone, and March 17 several were seen at the same place. The latest date I have recorded, September 23, 1902, I collected one at about timberline on the ridge above Elk Basin, and there was a good bit of snow there at that date. The following year I saw it in the same region the last of June, and on the thirtieth of that month I found a nest with four eggs on the slope at the head of Elk Basin. This nest was on the ground with practically no protection in the way of surrounding or overhanging vegetation. In 1915 the species did not seem to be as common as of old; possibly its habits of frequenting the roads and roadsides have made it an easy prey for the foreigners.

**Pica pica hudsonia.** MAGPIE.—Common resident and breeder. Nests mainly along streams, building largely in the willows, but also in the coniferous trees, and in the cottonwoods when there are any. Judging from the data at hand difference of altitude does not make much difference in the time of breeding. Thus at Crested Butte, 9,000 feet, I found newly hatched young May 27, 1900, and on West Muddy Creek, 7,000 feet, I found young of the same age May 28, 1902. The young at Crested Butte were observed closely, and were out of the nest in the branches at the age of four weeks, though as yet unable to fly, and when 5 weeks old could fly a little, and quite well at 6 weeks of age. On West Muddy Creek, June 20, 1903, young about four weeks old were found. I am doubtful if it breeds above 9,500 feet. The Magpie sometimes goes to timberline, one being seen at that elevation above Independence Basin, September 23, 1902. It is a nuisance in winter when one is trying to trap about animal carcasses as they are continually getting into the traps.

This is another of the species which I found to be rare about Crested Butte in 1915, and I saw very few during four weeks in June. I was told, however, that there were many about that spring; perhaps they also went into the pot with the other birds.

**Cyanocitta stelleri diademata.** LONG-CRESTED JAY.—Not uncommon; probably breeds as notes indicate its presence throughout the summer. I think it must go somewhat lower during the most severe portion of the winter as I have no records for that season. The latest is November 24 and 25, 1899, at the Keystone Mine, west of Crested Butte, 10,000 feet. One or two seen frequently about Hillside Ranch in June, 1915. In late

September, 1910, when camped on Middle Brush Creek at 9,750 feet, I saw a few about. Generally but one or two are seen at a time. On Muddy Creek the species is more common, as the altitude is lower. When at Adams's ranch in September, 1902, I saw these Jays carrying heads of grain from the shocks in the field and hiding them in trees. Several birds were constantly going back and forth on this errand.

**Perisoreus canadensis capitalis.** ROCKY MOUNTAIN JAY. CAMP BIRD.—A common resident of the higher altitudes, making its home for the most part in the heavy timber from 10,500 to 11,500 feet, but wandering lower in the fall and early winter, and a few occasionally winter at quite low altitudes about ranches and mines. It must breed before the snow is gone as I shot a young one, full fledged but not long from the nest, May 31, 1900, which would indicate that the eggs must be laid in April, when the snow is still deep at that altitude, and the nights, if not the days, cold. The "Camp Robber," as it is often called, often becomes very tame and familiar and will take food from the hand. In the fall of 1900 some were very tame at the "Twin Springs," on the south slope of Mt. Emmons, though no one was at that time living in the cabin there. They would take bread from my fingers, and one tried to steal a whole slice from my lunch which was on the ground close beside me, though I was dividing with them quite fairly. Like all their family they are great hands to carry away and hide food, and when fed a bird will usually eat a mouthful or two, take all it can hold in its bill, and fly off with it, presently returning to repeat the performance. Some, at least, of the adult birds moult in June, as I have seen them with short tails, or parts of the tail missing; the plumage of others was very ragged at that date. I have also seen birds in mid-September which had not yet completed the moult.

**Corvus corax sinuatus.** RAVEN.—Not common, occasionally seen. In 1885-6 there always used to be a few about the Augusta Mine at the head of Poverty Gulch, 12,500 feet, feeding on the refuse thrown out by the cook. C. F. Frey told me that Ravens bred in the cliffs on Anthracite Creek above the "Watson Ranch." Possibly the Ravens at the Augusta may have come from there as this mine is at the head of a branch of Anthracite Creek. In June, 1901, a number were seen near the trail between Anthracite and Muddy Creeks; a band of sheep was lambing there and a good many dead lambs were about.

**Corvus brachyrhynchos brachyrhynchos.** CROW.—Early in 1901 H. A. Decker saw several birds near Crested Butte which he was sure were Crows. He said they "cawed," and were not as large as Ravens, with which he was familiar. Confirmatory of this, October 27, 1905, I saw 6 or 8 birds a few miles north of Gunnison, or 20 miles south of Crested Butte, which I had no doubt were Crows.

**Nucifraga columbiana.** CLARKE'S NUTCRACKER.—Not common, at least about Crested Butte, though at Anderson's ranch, Marble, the last of September, 1900, a good many were coming about the house for scraps, and were quite tame. They seemed to rather bully the Camp Birds and



Long-crested Jays which were also about. My records for Crested Butte are few and scattering. I saw it at Hillside Ranch twice in June, 1915. On the tenth, while photographing an Audubon's Warbler's nest, two came around, and I think they would have robbed the nest when I left if I had not taken it with me. I am inclined to think the species is more common in the northern part of the region than the southern, though I know of no reason why this should be the case.

**Molothrus ater ater.** COWBIRD.—Apparently a rare summer resident. Seen at Pogna's ranch, 7 miles below Crested Butte, July 9, 1903. One seen at Marble, June 25, 1915.

**Xanthocephalus xanthocephalus.** YELLOW-HEADED, BLACKBIRD.—Only a straggler at Crested Butte, and I have but two personal records, May 8 and September 22, 1900. I was told of one at Hillside Ranch in the spring of 1915. These were all males. A male was seen at Adam's ranch on Muddy Creek, June 14, 1903, and Adams spoke as if he had never seen it there before.

**Agelaius phoeniceus fortis.** THICK-BILLED REDWING.—Not particularly common at Crested Butte, though there are always some about in summer. Earliest date is March 20, 1900; latest November 27, 1901. No doubt these dates vary much with the season. July 26, 1902, some young were seen just beginning to fly, presumably at Meridian Lake, as I was doing some surveying there at that date. There were some at Hillside Lake all through June, 1915, and on the fourth a nest with five fresh eggs was collected, built in some willows by the lake shore. On the Muddy I used to see these Blackbirds about the little ponds and marshy spots.

**Sturnella neglecta.** WESTERN MEADOWLARK.—Formerly a common summer resident and breeder in open ground. In 1915 Meadowlarks did not appear to be nearly as abundant as formerly, possibly for the reason previously mentioned in connection with other species. I have seen it up to about 9,500 feet. I have no early spring dates; seen as late as October 5, 1910. June 6, 1901, there was a nest at Hillside Ranch with 6 young; it was empty two days later; possibly the young were eaten by a snake.

**Icterus bullocki.** BULLOCK'S ORIOLE.—Seen at Adams's Ranch, Muddy Creek, May 19, 1901.

**Euphagus cyanocephalus.** BREWER'S BLACKBIRD.—Common summer resident and breeder. Seen as early as April 1, 1900, and as late as November 14, 1901, but the majority are gone by the middle of October. By the last of July they have gathered in large flocks and are numerous about the streets of Crested Butte. These Blackbirds were nesting in some spruce trees in the corral at Adams's ranch, and May 31, 1901, I found a nest with 5 eggs and the following day two nests with 6 eggs in each in nearby trees. June 15 a young bird not able to fly was found in the corral; possibly it had fallen from one of these nests. May 29, 1902, I found a nest with eggs in the same corral. In 1915 I discovered several nests with eggs in the willows along the shore of Hillside Lake. Two of these contained 5 eggs each; a set collected June 6 was heavily incubated and would

have hatched in a few days. The other set of five was found June 10, and I sometimes saw the female on the nest, but I think she eventually deserted it; the eggs were there up to June 29, but were gone on the afternoon of the 30th except for a few fragments of shell. Whenever I went along the lake shore several blackbirds of both sexes always kept me company, perching on the willows and uttering notes of distress. June 26 I saw the first young of the year out of the nest and one or two were seen almost daily after that.

In the town of Crested Butte I used to see partial albinos quite frequently; it is possible there may have been a family with a tendency toward albinism breeding thereabouts. Thus from my notebooks:

*Sept. 7, 1900.* This morning as I was coming up from breakfast saw a young Blackbird, or a female, with a white spot as big as my thumb in the middle of its back.

*Sept. 10, 1900.* Had a close view of what was probably the same albino seen on the 7th. It had other white feathers on it besides the patch on the back, including some under wings.

*Sept. 22, 1900.* One seen on street which had the outside edge of left wing white; should think the outer two or three primaries were white.

*Oct. 7, 1901.* A female about town with a number of white feathers scattered through its plumage, and it also had one leg crippled in some way.

*Oct. 11, 1901.* There are, as last year, a number of partially albino Blackbirds about, I have seen several.

If my memory serves me right, I saw others in other years, before I made any notes.

***Pinicola enucleator montana.*** ROCKY MOUNTAIN PINE GROSBEAK. — I have seen this species on a few occasions, high up in the timber; twice near the Venango mine, Irwin, in July and October, and on Mt. Emmons. Late in September, 1910, I saw quite a number on Middel Brush Creek. These various records were at altitudes from 9,800 to nearly 11,000 feet.

***Carpodacus cassini.*** CASSIN'S PURPLE FINCH. — I saw Cassin's Finches several times in June, 1915, at Hillside Ranch; in Rustler Gulch, at 10,000 feet; at Scofield, 10,150 feet; and near the Keystone Mine. September 24, 1910, I saw a flock of 25 or more on Middle Brush Creek, and secured one. From these data one may conclude that the species is at least a summer resident; whether it stays during the winter remains to be proven.

***Loxia curvirostra minor.*** CROSSBILL. — Seen on Mt. Emmons, at 11,000 feet, September 21, 1901; also two seen near Scofield, October 13, 1900.

***Leucosticte tephrocotis tephrocotis.*** GRAY-CROWNED ROSY FINCH. — Rosy Finches come about in large flocks in autumn and winter, rather erratically; I have seen them in the town of Crested Butte and at Hillside Ranch; some, if not a majority, of these winter birds are Gray-crowned. The winter of 1886-7 I spent at the Domingo Mine above Dark Cañon, between 11,000 and 12,000 feet, and pleasant days through the winter Rosy Finches used to come and feed on the refuse we threw out. I col-

lected none of these birds and kept no notes, but have a distinct recollection that I saw black individuals among them. A flock at Hillside Ranch, March 29, 1902, seemed to be all, or nearly all, Gray-crowned.

**Leucosticte australis.** BROWN-CAPPED ROSY FINCH.—A summer resident on the mountain tops, above timberline, and no doubt helps form the winter flocks. My summer notes often mention seeing it at high altitudes. July 11, 1902, one was seen on Mt. Emmons, hopping along on a snowbank picking at the snow; I could not tell if it was eating snow to quench its thirst or picking up food. September 23 of the same year a flock of 50 or more was seen on the same mountain; the birds lit quite close to me once, feeding on the grass and weed seeds. June 28, 1915, I saw several in Elk Basin at 11,500 feet, in a loose sort of flock. I shot two females, which I have no doubt were breeding as their breasts and abdomens were denuded of feathers and the ova in the ovaries were small. It may be that they had young as their crops were filled with small seeds which possibly were intended for food for their broods. I had no time to make any search for their nests. The crops and stomachs were sent to the Biological Survey for examination and I received the following report:

Stomach A. Over 2400 seeds of *Alsine* [Chickweed], 80%; about 80 of a Composite like *Bidens* (shelled), 15%; and a few of *Eragrostis*, *Polygonum* and unidentified trace; 2 *Corizus hyalinus*, 11 *Corizus indentatus*, a few *Baicalutha impicta*, etc., 4%; 1 *Trypeta* sp., fragments of beetle, etc., trace, remains of several spiders, 1%.

Stomach B. About 40 seeds of Composite like *Bidens* and fragments, 50%; about 320 of *Alsine*, 35%; and 100 of *Eragrostis*, 10%; 3 *Corizus indentatus*, 1 fly and traces of beetle, 5%.

While the report refers to the *Alsine* as probably *media*, it is more likely to be *umbellata* or *baicalensis*, which are synonymous, and which species is found at high altitudes in Colorado, while the other is not, to the best of my information.

**Acanthis linaria linaria.** REDPOLL.—I have but two records for this species, a flock seen about the corral at Hillside Ranch, October 21, 1900, and a single bird at the same place, November 11 of the same year.

**Spinus pinus.** PINE SISKIN.—Probably a summer resident and breeder; I have seen the species in summer and autumn, and once in January, on the 31st, 1902. June 30, 1903, I saw two in the corral at Hillside Ranch, one of which seemed to be gathering hair for nesting material. In June, 1915, I saw a pair frequently at Hillside Ranch, and occasionally other individuals. It was also seen in and near Crested Butte.

Sclater, in "A History of the Birds of Colorado," p. 345, records from my MS. notes the Arkansas Goldfinch, *Astragalinus p. psaltria*, as occurring at Crested Butte. The date of this record was June 5, 1900. I wish to state here that I am convinced that I was mistaken in my identification and that the birds seen were really Pine Siskins.

**Passer domesticus.** HOUSE SPARROW.—ENGLISH SPARROW.—First seen at Crested Butte December 1, 1900. I was away all the winter, but

on my return in April, 1901, I saw the birds about the town. I do not think they have ever been especially abundant.

**Poocetes gramineus confinis.** WESTERN VESPER SPARROW.—A common summer resident and breeder. Arrives late in April or early in May; I have a note that I thought I saw one April 21, 1901. Remains until at least the middle of September, and I have a note that one was seen November 3, 1902, though this is extraordinarily late. Nests abundantly, laying from 3 to 5 eggs. The following notes give an idea of the nesting dates:

May 27, 1900, nest with 3 eggs at Hillside Ranch; hatched between June 3 and 8. Another nest with 4 young larger than those in the first was found on the 8th.

4 eggs, June 5, 1900, at Genright's ranch.

4 eggs, June 13, 1900, Hillside Ranch, still unhatched on 17th, and deserted on 24th, with one dead young bird in it, and 3 eggs.

June 15, 1902, 4 eggs, Hillside Ranch, low down in sage brush; 3 well grown young in this June 22.

4 eggs, June 19, 1902, near Crested Butte.

3 eggs, July 10, 1903, at Hillside Ranch; 2 young in this July 26, about 5 days old.

June 26, 1915, a nest with 4 well incubated eggs.

Nearly all these nests were on the ground, often under an *Artemisia* bush, but not infrequently under a tuft of grass or a cinquefoil bush. The above notes show that the nesting season may extend over a period of several weeks; very possibly late sets are second layings due to the destruction of the first set. The species was also common on Muddy Creek.

**Zonotrichia leucophrys leucophrys.** WHITE-CROWNED SPARROW.—Common summer resident. Arrives about the first week in May, and leaves the middle of October. I do not think it nests below 9,500 feet. The early part of June, 1915, White-crowns were common about Hillside Ranch, 9,200 feet, and I was also noting it elsewhere; the twelfth was the last date on which I saw it at the ranch, though I observed it often at somewhat higher elevations, and on the 17th collected a nest with four nearly fresh eggs 2 miles west of Crested Butte, at about 9,500 feet; this was built in a tuft of grass on the ground, in a damp spot near a little brook, with willow thickets all about. That same day many were seen on the hillside below the Keystone Mine, and I saw several old nests which I thought belonged to this species in the willows there. As there were exactly similar localities and conditions at the Hillside Ranch I came to the conclusion that they did not breed there because of the low elevation. June 23, 1915, I saw some in Galena Park, 10,300 feet, when the snow had been gone from there but a few days. I have also seen the species up to nearly 12,000 feet.

**Spizella monticola ochracea.** WESTERN TREE SPARROW.—Has been seen in autumn, when it is quite common about Crested Butte in late September and in October; also noted at Marble in October. No spring records.

**Spizella passerina arizonæ.** WESTERN CHIPPING SPARROW.— Rather common summer resident. I do not know what its range in altitude is, I have seen it a little above 9,000 feet.

**Junco shufeldti.** SHUFELDT'S JUNCO.— A number of black-headed Juncos taken near Crested Butte were identified by H. C. Oberholser of the Biological Survey as *shufeldti*. It occurs during the spring and autumn migrations, and at the latter season, at least, appears to be quite common. None of the Juncos seem to winter in the region.

**Junco mearnsi.** PINK-SIDED JUNCO.— Common in migration; arrives as early as September 24, and remains through October. A note of October 17, 1902, speaks of this as being the most abundant of the three species of Junco seen on the Irwin road. Ranges at least to nearly 11,000 feet.

**Junco phænotus caniceps.** GRAY-HEADED JUNCO.— Common summer resident and breeder; I have no records to indicate the date of the spring arrivals, except that it was seen at Hillside Ranch, April 20, 1901. It remains through October. June 8, 1915, I found a nest with 3 eggs in a tall tuft of dead grass on the south slope of Crested Butte Mountain; July 5, 1900, a nest with 4 newly hatched young was discovered under a bunch of grass beside an old timber road south of Coal Creek, 5 miles west of Crested Butte; July 11, 1902, young just able to fly seen on the "Smith Trail," west of Crested Butte.

**Melospiza melodia montana.** MOUNTAIN SONG SPARROW.— My records of this species for the region are decidedly scanty; it seems to be a summer resident, but is apparently rare. One was seen at Hillside Ranch, June 9, 1915. A Song Sparrow had a nest containing four eggs near a spring on the mesa west of Muddy Creek, at about 7,500 feet. One night a herd of cattle were about the spring and partly upset the nest; I straightened it up the next morning, and the bird went on incubating, but I do not know if she hatched the eggs.

**Melospiza lincolni lincolni.** LINCOLN'S SPARROW.— Summer resident and breeder; not uncommon. I have no definite records as to the vertical distribution of this species, my own being from 9,000 to 10,000 feet, nor have I any dates of arrival and departure.

**Pipilo maculatus montanus.** MOUNTAIN TOWHEE.— One seen on Anthracite Creek, near Layton's ranch, September, 1902; never seen in the Crested Butte region, which is too high.

**Oreospiza chlorura.** GREEN-TAILED TOWHEE.— Common summer resident and breeder, preferring the open ground and sage brush, going to nearly 10,000 feet at least. I have no records indicating the date of its arrival in spring, nor the lateness of its stay in autumn, except September 7, 1902. About Crested Butte this Towhee seems to prefer to place its nest in a sage brush, a foot or less above the ground. Nests with eggs found June 19, 1900; June 16, 1902; June 22, 1902; all near Crested Butte. These nests were all built of small twigs, lined with grass and horsehair. July 10, 1903, 3 young about ten days old were seen at Hillside Ranch. On Muddy Creek, June 15, 1903, I discovered 3 nests with eggs, and one with young on the 20th.



A ranchman I knew called this species "Redtop," a rather appropriate name.

**Zamelodia melanocephala.** BLACK-HEADED GROSBILL.— I used to see this bird quite frequently about the scrub oaks on Muddy Creek, and it was apparently a common summer resident in that region.

**Passerina amoena.** LAZULI BUNTING.— A pair seen at Adams's ranch on Muddy Creek, June 13, 1903.

**Piranga ludoviciana.** WESTERN TANAGER.— A summer visitor, status uncertain. I have seen this Tanager occasionally in summer, and with one exception all the birds observed were males. The dates are June 2, 1900; June 6, 1901; July 1, 1903; and June 7 and 13, 1915, all at Hillside ranch. A pair were seen on the last date, but were not seen again, though looked for. July 16, 1902, when going up High Bridge Creek, I saw a male Tanager flying over; I thought it had something in its mouth, and it may have been feeding young. One was seen at Crystal, 8,900 feet, August 10, 1902.

**Petrochelidon lunifrons lunifrons.** CLIFF SWALLOW.— Common summer resident and breeder. Builds its nest under the eaves of houses, and even under the cornices of the false fronts of store buildings on the main street of Crested Butte.

At Hillside Ranch, in June, 1902, I made the following notes:

22nd, "When I got up this morning there were quite a number of Cliff Swallows about the eaves on the east side of the upper house (a one story log structure). There was one nest started, apparently the day before. By night it was about done, another half done, and the beginnings of several others. It is strange how they all came there at once, for they have not been about before, though Violet-green Swallows are flying around all the time.

June 29. There are now 30 Swallows' nests on the upper house, mostly on the east side. I do not think there are any eggs yet. It was interesting to look up and see the birds' heads peeping out of the nests, and from many of the nests two heads."

August 31, 1902, a note says "No swallows about now."

October 18 I took down one of the above nests, photographed and measured it. It was 8 ins. wide across the back end, 8½ ins. long; 3¼ ins. deep inside and 4 ins. deep outside at the back. There was not very much of a nest inside, only a few straws laid together.

The following year there were no nests at this place. In 1915 there were two or three occupied nests on another house at Hillside Ranch, but none on the above mentioned.

**Hirundo erythrogastra.** BARN SWALLOW.— Summer resident; locally common. At Jarvis's ranch, East River, June 19, 1900, Barn Swallows were nesting about the wagon and cattle sheds. One nest was a very curious affair. Several strands of baling wire had been strung over a pole rafter which ran along the middle of the shed and twisted together below and bent up into a sort of hook. On this hook a pair of Swallows had built up a nest probably 5 inches high, and bearing a curious resemblance in its



shape to an oriole's nest. The separate pellets of mud from which it was built could be seen plainly. The next evening I looked up at the nest about dusk and saw one bird in it and the other perched on the wires below.

**Iridoprocne bicolor.** TREE SWALLOW.— Not until 1915 did I succeed in identifying Tree Swallows in the region, in fact I am quite sure I never saw them there before. On June 13 of that year while driving past Nichols's Lake on a road which at one place is sufficiently high above the water so the one could look down upon the swallows flying about I noted several Tree Swallows among the many Violet-green and Cliff Swallows there. I also saw the species at Hillside Ranch, and tried to collect some, but unsuccessfully. The birds flew about erratically and one had to wait for a good view before being able to decide if the bird was a Tree or Violet-green; the Cliff Swallows were easily separated.

Toward sunset many swallows of the various species were usually flying about the lake, and they changed their beat continually, sometimes out over the lake and above the dam, then away over in another corner sometimes flying quite low, and then again they were all to be seen high in the air circling about like a swarm of insects, but at all times evidently hunting. Occasionally they would all seem to disappear for a few minutes and then return.

**Tachycineta thalassina lepida.** NORTHERN VIOLET-GREEN SWALLOW.— Abundant summer resident and breeder. Earliest spring date May 10, 1900. In common with the other species of swallow is gone by about September first. Often nests in abandoned woodpecker's holes in dead aspens, of which there are a good many. On Muddy Creek it was nesting in holes in the sandstone cliffs along the stream. In 1900 I saw a dead aspen beside the Irwin road west of Crested Butte in which a Swallow and a House Wren had their nests in separate holes. July 16, 1903, I observed a nest at Hillside Ranch in an aspen about 8 feet above ground. Often the female would enter the nest without first alighting at the entrance, flying directly into the hole. Once I saw the male on the ground, picking at something, possibly ants. The next day I opened the nest by cutting out a section below the hole and found eggs; they seemed to be entirely buried and covered by the nest material. July 29 I found the nest deserted, no eggs left; it seemed a short time for the young to have been raised, 12 days.

At Marble, June 23-25, 1915, this was the only Swallow seen, and was abundant. It was seen in Galena Park 10,300 feet, on the same two days. It is often seen flying higher than timberline about the summits of the mountains, but I cannot say what is the highest elevation at which it breeds.

**Lanius borealis.** NORTHERN SHRIKE.— Visitor in late fall and early winter; I have no spring records.

**Lanius ludovicianus excubitorides.** WHITE-RUMPED SHRIKE.— A few seen about Crested Butte, late in August and early in September.

**Vireosylva gilva swainsoni.** WESTERN WARBLING VIREO.—I have but one record for this species, a female collected on Owens Creek, on the northwesterly slope of Crested Butte Mountain, 9,500 feet, June 15, 1915. It was collecting food when shot, so may have had young. It is quite likely a fairly common summer resident and breeder.

**Dendroica aestiva aestiva.** YELLOW WARBLER.—Summer resident, common; breeding limit is apparently a little above 9,000 feet. A pair had a nest at Adams's ranch on Muddy Creek in early part of June, 1903. In 1915 Yellow Warblers were very common about the Hillside Ranch and I discovered no less than six nests, all built in willows, 2 along the lake shore, 2 near the outlet of the lake, and 2 in willows on the meadow; all these last near running water. One nest was collected and I had a rather curious experience. It was found on the 9th and collected on the 16th of June. I was passing on the morning of the last-named date and looking into the nest saw four eggs. I returned about half an hour later with camera, cut out some interfering twigs, set up and focussed, and then discovered I had forgotten the plateholders, so went after them, returning in less than ten minutes, and took two pictures. I saw the female about while doing this. Then I went to remove the eggs and was surprised to find but one; looking about the remains of the others were discovered on the ground below. Query: Did the bird destroy the eggs between the first and second visits, or after I had set the camera and was absent after the plateholders?

**Dendroica auduboni auduboni.** AUDUBON'S WARBLER.—Summer resident and breeder; common. It breeds to at least 11,200 feet, judging from localities where I have seen the species in summer, and possibly somewhat higher. I saw one October 4, 1902, on the slope of Whitehouse Mountain, above Yule Creek.

June 10, 1915, I found an Audubon's Warbler's nest at Hillside Ranch. It was on a hill above the lake, in a Douglas's fir tree, on a branch about 8 feet above ground, and 4 feet out from the trunk. Twigs hung below, hiding it, and another twig projected over it above, hiding it from that point of view. I was obliged to cut off the latter twig in order to photograph the nest, and then the picture did not prove to be a success, thanks to the wind. I discovered the nest by watching the female as she worked about the tree hunting insects; when she disappeared on this branch and did not reappear after some time I investigated and flushed her from the nest. This is made of fine strips of dead bark on the outside, lined with horsehair and a few feathers, some of which are Long-crested Jay's, and others hen feathers. The nest is  $3\frac{1}{2}$  ins. diameter outside, 2 inside; and the cavity  $1\frac{3}{4}$  ins. deep. There were four eggs, very slightly incubated. On June 13 I saw a female Audubon's in willows along the lake-shore not far from where this nest was apparently collecting strips of dead bark for building material. Possibly the pair were building a second nest.

June 11, 1915, at an elevation of 11,200 feet on Mt. Emmons, in heavy Engelmann's Spruce timber, where the snow was three feet deep and no bare ground about, I saw at least two Audubon's Warblers about the

spruces. One was seen on Spring Creek, at the foot of Ragged Mountain, about 8,000 feet, May 14, 1902.

**Oporornis tolmiei.** MACGILLIVRAY'S WARBLER.—Summer resident and breeder; not uncommon. I do not know its vertical range, above 9,000 feet at least. As related under Wright's Flycatcher, a pair appeared to have a nest at Hillside Ranch, though I failed to locate it after diligent search. June 15, 1902, I did find a nest in the bushes on the shore of Hillside Lake. It was empty then, but on the 22nd contained 4 eggs, which were unhatched on the 29th; July 4 there were young in the nest.

**Wilsonia pusilla pileolata.** PILEOLATED WARBLER.—Common summer resident and breeder; from my observations made in 1915 I think about 9,500 feet marks the lower limit of its breeding range as after the first week in June I found none below that altitude, though common enough about the willows along the streams higher than that. A family was seen at Hillside Ranch, September 7, 1902.

**Anthus rubescens.** PIPIT.—Summer resident and breeder, living from near timberline up; have seen it at these elevations as late as September 23, 1902. June 27, 1903, I found a nest on the grassy slope above Elk Basin, containing 4 eggs. The nest was quite deep, and hidden under a bunch of grass facing southwest, being almost entirely concealed. July 13 I visited the nest again, found 3 young about two thirds grown and one unhatched egg. October 7, 1910, several were seen by the roadside not far from Crested Butte.

June 11, 1915, I ascended the south slope of Mt. Emmons to the summit, a little over 12,000 feet. The season was late, and everything was covered with snow, probably averaging three feet in depth, only a few bare patches being visible. On this snow I found many insects, all of them alive, and apparently carried there by the wind. Just above the limit of the large Engelmann's Spruces I saw one or two Robins on the snow picking up these insects, which were found from this line up to the summit. Higher up Pipits were feeding on them also. A number of the insects were secured and were identified for me by the Biological Survey, which reported four species of Hemiptera, two of Hymenoptera, two Diptera, and one Coleoptera. At this date the Pipits seemed to be paired, though probably had not yet built nests, as there was no place for them to build except on the snow.

**Cinclus mexicanus unicolor.** WATER OUSEL. DIPPER.—Frequently seen along the streams in summer, in fact all through the season of open water. There are usually one or two about Hillside Ranch in winter, where there is always some open water at the outlet of the lake, and also a little below where water from springs flows into the outlet and keeps open places here and there. A pair had a nest at Carey's on Muddy Creek, and were said to have nested there for several years. C. F. Frey said a pair nested in the same place near the Watson ranch on Anthracite Creek for a number of years.

**Dumetella carolinensis.** CATBIRD.—A pair nested for three years

in a dense thicket of Choke Cherry at Adams's ranch on Muddy Creek, 1901-2-3; the nest itself was not found except once in the fall after the leaves had gone. The male was always singing near the nest. This species does not occur in the Crested Butte region.

**Salpinctes obsoletus obsoletus.** ROCK WREN.—Summer resident; breeds. Apparently rare about Crested Butte. A brood of young from the nest were seen at Hillside Ranch, August 16, 1902. None seen there in 1915, but one noted June 28 just west of Crested Butte.

**Troglodytes aëdon parkmani.** WESTERN HOUSE WREN.—Common summer resident and breeder. Earliest spring date, May 5, 1900, at Crested Butte. Latest fall date, September 7, 1902, but doubtless remains later. Ranges to at least 10,500 feet. As everywhere breeds in all sorts of locations. As noted under that species a pair had a nest in the same tree with a Violet-green Swallow. A pair nested in between the slabs at a corner of a shed at Hillside Ranch in 1903, which had left the nest July 20. A family of young seen on Coon Creek, July 14, 1900. A Wren was noted at nest hole in dead aspen on south slope of Crested Butte Mountain, carrying food for young, June 8, 1915. During that month a pair had a nest somewhere about the log house in which I stayed at Hillside Ranch, but I could never discover its situation; in fact I think they changed its location for a second brood. June 11, and for several days after they were busy carrying food to the nest; then they seemed to be making ready for a new brood, and I thought they were occupying an old Cliff Swallow's nest under the eaves on the end as I saw a Wren in it several times, but finally concluded I was mistaken. There may have been some crevice in the roof, under the log ridge poles, into which they could get. The latter part of the month the male spent much of his time on a projecting pole at the end of the roof, singing.

**Sitta carolinensis nelsoni.** ROCKY MOUNTAIN NUTHATCH.—One observed at Hillside Ranch, carrying food, June 29, 1903. The only record I have of the species.

**Sitta pygmæa pygmæa.** PYGMY NUTHATCH.—One seen on Middle Brush Creek, September 28, 1910. My only record.

**Penthestes atricapillus septentrionalis.** LONG-TAILED CHICKADEE.—Resident, moderately common, but not seen as frequently as the next species, and possibly does not go as high. I have notes for all seasons. Seen at Marble; also on Muddy Creek.

**Penthestes gambeli gambeli.** MOUNTAIN CHICKADEE.—Resident; common; seen at all seasons; goes to timberline. One day in September, 1901, I was surveying near Irwin, and while standing by the transit a little band of Mountain Chickadees came very close to me and I could hear their notes very distinctly. They seemed to say "chick-a-dee-a-dee-a-dee," not "chick-a-dee-dee" as the Black-caps do. And the tone was also different, but I cannot describe it. I did not hear them use the "phe-be" call, nor would they answer when I whistled it.

**Regulus calendula calendula.** RUBY-CROWNED KINGLET.—Summer

resident; seems to be common. Usually noted in spring and fall. May 6, 1900, is my earliest date, at Hillside Ranch, where the willows along the lake shore appear to be a favorite resort for them in migration.

**Myadestes townsendi.** TOWNSEND'S SOLITAIRE.— Presumably a summer resident and breeder, and possibly a few winter. One seen at Hillside Ranch, March 10, 1902; also seen there June 5, 1915. Several noted early in October, 1910, on the south slope of Crested Butte Mountain, up to 11,000 feet.

**Hylocichla guttata guttata.** ALASKA HERMIT THRUSH.— Several seen, and one collected, on Middle Brush Creek, 9,800 feet, September 25, 26 and 27, 1910. One seen on south slope of Crested Butte Mountain, October 3, 1910.

**Hylocichla guttata auduboni.** AUDUBON'S HERMIT THRUSH.— I have but one record of this species for the region, a dead, thoroughly desiccated specimen I picked up on the Marble tramroad, Yule Creek, at about 9,000 feet. This was June 24, 1915. It may have been killed by striking a telephone or power wire. The species ought to be a summer resident.

**Planesticus migratorius propinquus.** WESTERN ROBIN.— Abundant summer resident and breeder. Earliest spring date April 1, 1900, and latest autumn date, October 27, 1900, both at Crested Butte. Begins nesting in May, and young are hatched last of that month and early in June. The following notes made about Crested Butte give an idea of the nesting:

June 2, 4 young about a week old; June 6, 3 young just hatched and 1 egg; June 9, 3 young about ready to fly; June 14, 3 young, well feathered; June 19, 4 eggs; July 12, 4 eggs; this last nest contained 3 young and one egg on 15th. The preceding nests were all noted in 1900. The following were observed in 1902: June 15, a nest with 4 young nearly ready to fly, and another nest with 4 eggs which did not hatch until after the 22d; July 20, 3 eggs, and in another nest 3 young which would have left the nest in a week. In 1915, the following notes were made: June 6, 2 young hatching; June 9, 2 well grown young; June 10, 3 well grown young, had left by the 16th; June 19, 4 eggs. The last of June many well grown young were about. Judging from the preceding dates they probably raise two broods in a season. I saw one nest in rather an odd situation. A large dead aspen had the bark split and partly separated from the trunk, and the nest was built between the bark and the trunk. I once found an old nest on the top of an old aspen stub, with no protection at all from the weather. October 4, 1910, one seen at 11,000 feet on Crested Butte Mountain.

**Sialia currucoides.** MOUNTAIN BLUEBIRD.— Abundant summer resident. Earliest spring date, March 14, 1900; latest autumn date, October 27, 1900. Nests in all sorts of situations, old woodpecker holes, holes in walls of stone buildings, in false fronts of buildings in town, in bird houses, almost anywhere. The first week in July there are usually a good many young just from the nest about Crested Butte, and I have seen them feeding young at Irwin, August 3. Seen at timberline, September 20, 1900. Seen in Galena Park, 10,300 feet, June 23, 1915.



## GENERAL NOTES.

**Recent Occurrence of Iceland Gulls near New York.**— During the past few years there have been some sight identifications of the Iceland Gull (*Larus leucopterus*) near New York City, which indicate that this species, though rare, occurs here every year or two between the middle of January and end of March. In this connection attention is called to remarks on the occurrence of the Iceland Gull near Boston and its satisfactory identification in life in 'The Auk,' July, 1908 (F. H. Allen, *Larus kumlieni* and other northern Gulls in the neighborhood of Boston, p. 296). As the validity of "sight" records depends on the circumstances under which they are made, we quote pertinent matters from the notes of the respective observers.—

1906, March 5. Observations by Dr. W. H. Wiegmann.

"The following observations were made [on a single Iceland Gull] opposite the Hoboken terminal of the Lackawanna R. R. and adjacent northerly pier . . . . Size noticeably smaller than the numerous Herring Gulls present: body more bulky with shorter and broader wings: entire head, neck, under surface of wings and under parts, pure white: mantle lighter than in *argentatus*: bill yellow, no carmine spot observed; distal ends of primaries white . . . . *Larus leucopterus* would fly towards water, settle and pick up some drifted garbage; then was at a distance of less than 50 ft. from my position. I also saw the bird pass over me at 25 feet."

1912. Observations by Ludlow Griscom.

"Feb. 6th. Hudson River from Liberty St. Ferry. Just as I was leaving the slip, several gulls flew by about 50 yds. away, and I saw at once that one of them was one of the white-winged species, a fact immediately verified by my prism glasses. At first the birds flew away, but a minute later wheeled with the other gulls and hovered over the same spot while the ferry came nearer, giving perfect views. It [the Iceland Gull] was noticeably smaller than the Herring Gulls, the head and bill appearing much sligher and more slender. The bird was an adult pure white with pearl gray on mantle and wings. The red spot on the lower mandible was noted also. As the ferry came very near indeed, all the gulls rose in the air and flew directly over my head at a maximum distance of 30 feet just clearing the upper deck, when every marking, except the red spot on the bill, could be seen with the naked eye."

"March 29th. Central Park, New York City.

Mr. S. V. LaDow and I saw an adult Iceland Gull with a large flock of Herring Gulls on the Reservoir. The smaller size and slenderer head and bill was again noted . . . . [In my absence] the Iceland Gull approached within 20 feet of Mr. La Dow thus giving him an incomparable observation."

1915 and 1916. Observations by J. T. Nichols.



"Feb. 13, 1915. Fort Lee Ferry, New York City. An immature plumaged Gull, paler and more uniform than a young Herring, with the primaries largely white, seemed about the size of Herring Gulls which flew up with it from an ice-pan in the river. It could only have been an Iceland Gull or very small Glaucous Gull, in all probability but not positively the former."

"Jan. 19, 1916. Twenty-third Street Ferry. New York City. An adult plumaged Iceland Gull seen nicely among Herring Gulls, though without glasses, at close range, from the front of the boat. The delicate grey of the mantle extended well out on the wing not sharply contrasted with its white tip. It was appreciably smaller than the Herring Gulls, the head and bill less heavy, and had an ethereal look which I accredited to its having a paler mantle, although by then my chance had passed for direct comparison of the tone of same. Its head and neck were clouded with brownish, its feet pink."—LUDLOW GRISCOM AND J. T. NICHOLS, *New York City*.

**The Arctic Tern in Central New York.**—On May 20, 1915, I was fortunate enough to collect an adult female of this species mixed in with Common and Black Terns and Bonaparte's Gulls at the north end of Cayuga Lake. As Brewster and Townsend have shown, it is distinguishable in life from the Common Tern by its all crimson bill and more deeply forked tail. Early writers on New York State ornithology mention this species without definite data, and Bergtold gives it as an accidental visitor near Buffalo. The only definite record for the state is a male in Mr. Dutcher's possession taken on Ram Island shoals, July 1, 1884.

The record is of particular interest to my mind, however, in furnishing a definite date for the spring migration of this species, about which little or nothing is known. It seems to arrive on the New England breeding grounds about May 15, though I have been unable to locate a definite record. It has been noted near Mt. McKinley, Alaska, May 30, 1908. In localities where it is only a transient, definite data are again lacking. An extremely early specimen was taken at Ann Arbor, Michigan, April 9, 1875. There are two records for Hawaii, May 9, 1891, and April 30, 1902. Considering the breeding range, one would think that there must be at least three migration routes through the United States, one along each coast and one through the interior, as it breeds in Wisconsin and abundantly in North Central Canada. The scarcity of records is correspondingly remarkable.—LUDLOW GRISCOM, *Ithaca, N. Y.*

**American Merganser, wintering at Boston, Mass.**—I have noted this species (*Mergus americanus*) on Charles River, Boston, Mass., this winter as follows:

Dec. 24, 1915. I saw a single bird in the female plumage.

Dec. 25, 1915. Saw a single bird in female plumage in the morning, in the afternoon saw three.

Dec. 31, 1915. Saw seven in plumage of the female, the river was skimmed over with ice, they were in an open space.

Jan. 4, 1916. I saw the seven again today, also saw a new one, a drake, in full plumage.

Jan. 13, 1916. Saw four, one drake, three in female plumage; another full plumaged drake joined them in the P. M.

Jan. 22, 1916. I saw thirteen, four drakes in full plumage, the others in the female plumage.

Jan. 30, 1916. I saw eleven, four of which were drakes in full plumage. They were widely separated.

Feb. 6, 1916. Saw twenty at 8 o'clock A. M., five of them drakes, later there were nine drakes.

Feb. 7, 1916. Saw them all again this morning.

Feb. 10, 1916. River closed with ice, birds all gone.

I have noticed a number of times this winter a feature in the courtship of the drakes, while resting on the water. They would send out a stream of water with their feet, or foot, between three and four feet directly behind them. I would also mention that they are astonishingly swift swimmers under water, and that coming up under the ice apparently caused them little inconvenience.—GEORGE H. MACKAY, *Nantucket, Mass.*

**The European Widgeon in Central New York.**—On April 11, 1915, Prof. A. A. Allen and I were in the Montezuma marshes at the outlet of Lake Cayuga, attempting to photograph the wild fowl. Leaving Prof. Allen in the blind I wandered over the marsh to "Black Lake" where a handsome drake of this species was discovered in a flock of Baldpate. An hour or so later we both returned, and the European Widgeon was observed at fairly close range through prism glasses for a quarter of an hour, every detail of plumage being satisfactorily made out. The species has not been recorded from the Cayuga Lake Basin in many years, and through Prof. Allen's courtesy I am able to record our observation.—LUDLOW GRISCOM, *Ithaca, N. Y.*

**Limicolæ at Porto Rico in July.**—While studying the fishes of Porto Rico in behalf of the N. Y. Academy of Sciences and Insular Government; Guanica Lake, July 27, 1914: the writer observed a Least Tern (*Sterna antillarum*), about a dozen Lesser Yellowlegs (*Totanus flavipes*), as many Least Sandpipers (*Pisobia minutilla*), a couple of Semipalmated Sandpipers (*Ereunetes pusillus*), and a single Greater Yellowlegs (*Totanus melanoleucus*). The Tern is a more recent occurrence than noted by Wetmore, Birds of Porto Rico, 1916 (U. S. Dept. Ag., Bull. No. 326), and the date for the Shore Birds is earlier than any he gives for them on their southward migration, earlier than, at first thought, one would expect them to reach the West Indies. But many early south-bound Limicolæ probably move very rapidly, reaching localities in widely separated latitudes on approximately the same dates. This was first called to the writer's attention by

some of these birds which he chanced to observe in Bermuda in 1903. In the *Zoölogist* for Nov., 1877, Reid records the Turnstone (*Arenaria interpres morinella*) as having occurred in Bermuda Aug. 3, the Lesser Yellowlegs July 13, dates which correspond closely with the arrival of these species on Long Island, New York. He gives the Ringneck (*Ægialitis semipalmata*) and Greater Yellowlegs as arriving early in August, the Semipalmated Sandpiper, the first of August or a few days earlier; which is little later than the arrival of the main flight of these same species on Long Island. A Turnstone has been noted at Cooper's Island, Bermuda, by H. Bowditch, July 27 (*Am. Naturalist*, 1904, p. 557), which would be an exceptionally early date for higher latitudes.—J. T. NICHOLS, *New York City*.

**Krider's Hawk (*Buteo borealis krideri*) in Alaska.**—Krider's Hawk, the type specimen of which was taken in Winnebago County, Iowa, September, 1872, ranges according to the 1910 Check-List of the American Ornithologists' Union, from the "great plains, from Wyoming, North Dakota, and Minnesota, south to Nebraska and Missouri, and in winter to Wisconsin, Illinois, Texas, Louisiana, and Mississippi." It is, therefore, of no little interest to record a specimen from Eagle, Alaska, which was secured for the Coe College Museum, (No. 336), through Rev. Dr. C. F. Ensign, formerly a missionary at that station. The exact date on which the specimen was collected is not available, but it was during the winter of 1903. The bird was submitted for final identification to Mr. Robert Ridgway of the National Museum, Washington, D. C. Mr. Ensign says that hawks like this one are not common in that part of Alaska, and whether others seen were of this variety may be questioned.

The bird is fairly light for an immature specimen of this variety, the middle breast practically unspotted, the belly showing an incomplete belt of scattered brownish spots. The feathers of the head are whitish basally, the shafts appearing as dark penciled lines, each shaft bordered on either side with dusky brown. The tail is crossed by eight distinct narrow dusky bands, the spaces between the bands being rusty whitish, the under surface of the tail and body markedly white. Tibiæ spotted somewhat with faint buff.

The measurements of the specimen taken (from the skin) are as follows:

Length	600 millimeters.
Wing	400 "
Tail	260 "
Tarsus	75 "
Bill (including cere)	37 "

Krider's Hawks have been reported to me not infrequently from various parts of Iowa, and especially from the region about Eagle Lake, in Hancock County, Iowa. It is a conspicuous bird in the field, being recognized even by those who are not ornithologists, as a much lighter colored hawk than the common Red-tail.—B. H. BAILEY, M. D., *Dept. Zoölogy, Coe College, Cedar Rapids, Iowa*.

**The Type Locality of *Colaptes cafer*.**—According to the A. O. U. Check-List *Colaptes cafer* described by Gmelin in 1788 is an extralimital species, and the type locality, erroneously given as Cape of Good Hope, is generally assumed to be Mexico.

Gmelin's original description (Syst. Nat., 13th ed., I, p. 431), is as follows:

*P. supra fuscus, subtus vinaceus nigro-guttatus, alis subtus, scapisque remigum et reticam miniatis.*

*Habitat ad caput bonæ spei, aurato multum similis, sed minor.*

*Rostrum fuscum, ad utrumque latus stria rubra notatum; cauda acuta, rectricibus apice bifurcis.*

There is no citation here as there is under most of the other species to indicate the original source of the description. It is well known however, that Gmelin's descriptions were not made from specimens but were compiled from the works of previous authors and in the case of birds from the west coast of North America his information was obtained almost entirely from Latham's 'Synopsis.'

Latham did not recognize the Red-shafted Flicker as a distinct species nor did he give it a name, but in his General Synopsis of Birds (II, p. 599, 1782), after the account of the Gold-winged Woodpecker he adds the following note:

49a. "I have lately seen, in the Museum above referred to [the Leverian Museum of Sir Ashton Lever to which Latham had free access], a bird which appears to be a mere variety, though brought from a far different country. This was *much like the last described in colour, but rather less in size.* The bill exactly made like that bird [the Gold-winged Woodpecker], and brown: *on each side of the jaw is a stripe of crimson, like a whisker: the under parts of the wings of a pale red colour, not unlike what is called red lead: and the shafts of the quills and tail, which in the other bird are yellow, in this are red: the plumage on the upper parts of the body is brown: beneath vinaceous, marked with round black spots: tail black, pointed, and each feather bifurcated at the tip, exactly like the American one.*

"This was brought from the *Cape of Good Hope*. I have seen two specimens of this bird."

It will be seen by a comparison of Gmelin's description with the extract from Latham which I have italicized that practically every word even to the locality is found in Latham's account. Five years later, in 1787, in his Supplement to the Synopsis of Birds (Vol. I, p. 111) Latham makes this significant statement:

"Gold-winged Woodpecker. Gen. Syn., II, p. 597, No. 49."

Captain Cook in his last voyage found this bird at Nootka Sound.<sup>1</sup>

Turning to the page cited, we find that Cook in speaking of the birds found at Nootka Sound mentions two species of woodpeckers, one of which, evidently the Red-shafted Flicker, is described as follows:

"The other is a larger, and much more elegant bird, of a dusky brown

<sup>1</sup> Voy., II., p. 297.

colour, on the upper part, richly waved with black, except about the head; the belly of a reddish cast, with round black spots; a black spot on the breast; and the under-side of the wings and tail a plain scarlet colour, though blackish above; with a crimson streak running from the angle of the mouth, a little down the neck on each side."

A reëxamination of these descriptions in chronological order shows: (1) that the bird found by Cook at Nootka Sound in 1778 and that described by Latham in 1782 are one and the same species, even without reference to Latham's statement in the Supplement; (2) that the birds described by Latham and Gmelin are identical and Gmelin's description is evidently taken from Latham. Gmelin's description of *cafer* follows the description of *auratus* based on Latham's Gold-winged Woodpecker No. 49, and precedes the description of *olivaceus* based on Latham's 'Crimson-breasted Woodpecker'<sup>1</sup> No. 50, so that the sequence of these three species is the same in both books.

Latham's connection with Gmelin's description was evidently recognized by contemporaneous authors as is shown by the citation of the reference to the 'Synopsis' in the synonymy of *cafer* by Donndorff in 1794 (Ornith. Beyträge zur XIII Ausgabe Linn. Natursyst., p. 518) and Suckow in 1800 (Anfangsgr. Thiere, II, p. 547).<sup>2</sup> Later Wagler, in 1827, proposed *lathamii* as a substitute for Gmelin's inappropriate name *cafer* (Syst. Avium, Picus, sp. 85). The reason that Gmelin included no reference to Latham was probably due either to inadvertence or to the fact that Latham gave no distinctive name or number to the Red-shafted Flicker.

The locality 'Cape of Good Hope' which has caused so much confusion also shows the close connection between the two descriptions. It may be regarded as a case of transposed labels on the specimens or a typographical error, but it is interesting to note that on Cook's chart of his routes in the Pacific Ocean the entrance to Nootka Sound is marked Bay of Good Hope ('B. of G. Hope'). It is mentioned in the text as Hope Bay, the name being given by Cook upon first sighting this point on the coast and "hoping, from the appearance of the land, to find in it a good harbor" (II, p. 264). Possibly this troublesome 'Cape of Good Hope' which has always been associated with South Africa may have been only a misprint for the long forgotten 'Bay of Good Hope' on the west coast of Vancouver Island. Latham's statement that Captain Cook found the *Gold-winged Woodpecker* at Nootka Sound is not to be taken literally for at that time Latham regarded the Red-shafted Flicker as merely a variety of his Gold-winged Woodpecker and both he and Cook described the red-shafted and not the yellow-shafted bird.

<sup>1</sup> This specimen which was also in the Leverian Museum later passed into the possession of the Bullock Museum and on the disposal of that collection was sold on May 18, 1819, to Baron Laugier for 12 shillings (Hist. Coll. Nat. Hist., Depts. Nat. Mus., II, 223, 1906). I have been unable to ascertain the history of the flickers.

<sup>2</sup> For the opportunity of consulting these rare works I am indebted to Dr. C. W. Richmond of the U. S. National Museum.

I therefore designate Nootka Sound as the type locality of Gmelin's *Picus cafer*.

Admitting that Gmelin's description really belongs to the bird found by Cook at this locality, several changes in nomenclature are unavoidable. Gmelin's name must be adopted for the Northwest coast Flicker which thus becomes *Colaptes cafer cafer* and *Colaptes c. saturator* is reduced to synonymy. *Colaptes mexicanus* of Swainson should be restored as the name of the Mexican bird in accordance with the usage of most English ornithologists but in the form *Colaptes cafer mexicanus*. No change is necessary in the name of the California bird which remains *Colaptes c. collaris* (Vigors) or in that of the Guadalupe Flicker, *Colaptes c. rufipileus* (Ridgway). Such a solution of the *cafer* difficulty seems reasonable and has much in its favor. It is inconceivable that such a conspicuous bird as the Red-shafted Flicker which was represented in England at the time of the return of Cook's expedition by at least two specimens, two published descriptions, and a colored plate<sup>1</sup> should have remained unnamed for nearly half a century until Swainson in 1827 described the bird brought from Mexico by Bullock, and Vigors in 1829 named the flicker obtained on the Pacific Coast during the Voyage of H. M. S. 'Blossom.' Moreover the transfer of the name *cafer* to the Northwest Coast Flicker connects the history of the bird with that of Capt. James Cook, the famous navigator and explorer, to whom undoubtedly belongs the honor of collecting the first specimens which were carried to Europe.—T. S. PALMER, *Washington, D. C.*

**The Scissor-tailed Flycatcher in New Mexico.**—The Scissor-tailed Flycatcher has long been known as an inhabitant of western Texas almost to the New Mexico line, but up to the present time has had no unquestionable published record for the latter State. A recent letter from Mr. E. H. Byers says that the species is nesting this summer at Hobbs, New Mexico, close to the Texas line and about 45 miles north of the southeastern corner of New Mexico.

Mr. Byers was familiar with the bird in former years in eastern Texas, and was pleased to welcome an old acquaintance when it first appeared at Hobbs in June, 1912, and raised a family in a mesquite bush about a mile from water and from the nearest human habitation. Since then the numbers have increased until the summer of 1915 they were fairly common and ranged at least ten miles into New Mexico from the Texas line. But instead of nesting in isolated places, most of the species have built in the trees near houses where there are reservoirs supplied by windmills. One pair actually built their nest on a windmill at the middle of the vane,

<sup>1</sup> This plate was drawn by William W. Ellis, the artist, who accompanied Captain Cook on his third voyage. The plate is No. 19 and is marked "King George's Sound (= Nootka Sound) W. Ellis, del. etc., 1778." According to Sharpe, this plate which represents *Colaptes auratus* is now in the Museum of Natural History at South Kensington, England (Hist. Coll. Brit. Mus., II, 173, 200).



where their summer home was constantly shifting in a 30-foot circle and often at high speed. The eggs had been laid, and incubation begun, when an unusually severe storm tore the fabric from its fastening.—WELLS W. COOKE, *Biological Survey, Washington, D. C.*

**Evening Grosbeak at Williamsport, Pa.**—On April 20, 1916, and again on April 28 on a morning walk through one of our parks I chanced on some birds that were entirely new to me. I was able to observe them carefully and submitted a description of them to Dr. Witmer Stone who at once pronounced them to be Evening Grosbeaks (*Hesperiphona vespertina vespertina*). A subsequent visit to the same spot early in May failed to discover them.—(MISS) BERT L. GAGE, *Williamsport, Pa.*

**Evening Grosbeak at Rochester, N. Y.**—About the middle of March we had a report from a correspondent in Massachusetts that the Evening Grosbeak (*Hesperiphona vespertina vespertina*) had appeared there, so that it may be of interest to report that two pairs were seen here on March 19 and 20 feeding in thorn apple bushes on the outskirts of the city.—F. H. WARD, *Rochester, N. Y.*

**Evening Grosbeak at Lowville, N. Y.**—The Evening Grosbeaks (*Hesperiphona vespertina vespertina*) have been very plentiful here during the past winter and spring, they came in the latter part of December and were common up to the 15th of May when the bulk of them disappeared. Two or three were seen as late as May 17. There was a flock of about fifty birds which made their home in the village feeding mainly on maple seeds. They also fed on Sumac seeds of which they appeared to be very fond. There was a good proportion of male birds in all stages of plumage. This is the first instance, to my knowledge, of this species having been here in such numbers.—JAMES H. MILLER, *Lowville, N. Y.*

**The Calaveras Warbler in Colorado.**—The undersigned has to record the occurrence of this warbler (*Vermivora rubricapilla gutturalis*) in Colorado, having collected a male of this subspecies in Carver Cañon (altitude about 7000 ft.), eight miles west of Sedalia, Colo., on September 12, 1915. Inasmuch as this seems to be the first record for this State, and in order that there might be no question as to identification, the skin was sent to W. DeW. Miller of the American Museum of Natural History, who kindly examined it, and independently diagnosed it as "a typical example of *Vermivora rubricapilla gutturalis*."—W. H. BERGTOLD, *Denver, Colo.*

**The Catbird in Winter in Massachusetts.**—In January, 1916, I saw a calling Catbird (*Dumetella carolinensis*) near dusk in the Botanic Garden, Cambridge, Massachusetts. On the 29th of February I saw him again in a yard on Garden Street near the Botanic Garden, and again on 10 March. This has been an unusually severe winter and the past month,

according to the Weather Bureau, the snowiest February since 1893, but this bird seems to be in good condition.

My only other record of the Catbird in winter is that of an individual which I observed in Stoughton on December 4, 1910. My latest date for an undoubted migrant is October 22, 1913, when I heard one calling in North Stoughton.—S. F. BLAKE, *Stoughton, Mass.*

**Breeding of the Golden-crowned Kinglet in Norfolk County, Massachusetts.**—On June 16, 1908, I discovered in Stoughton, Massachusetts, a breeding pair of Golden-crowned Kinglets (*Regulus satrapa satrapa*) with their nest, apparently the first to be found in the east-central part of the state since the nest with three eggs found by N. Vickary at Lynn in May or June, 1889. My attention was first attracted by the familiar call-notes of the birds coming from the edge of a rather close growth of Red Cedar (*Juniperus virginiana*) and deciduous trees at the base of a low hill close to a little-travelled wood-road. Pushing in among the trees, I soon caught a glimpse of the female Kinglet being pursued by a Black-and-white Warbler. The male soon came into view, and very soon the female disappeared in the top of a red cedar about twenty feet high. After a few minutes' wait I climbed a nearby tree and found her sitting on the nest. This was placed 18 feet 10 inches above the ground on the upper side of a small branch about a foot long, near the trunk and about a foot and a half from the top of the tree, rather firmly fastened and requiring some effort to dislodge. The nest is a firm ball of green moss (chiefly *Thelia hirtella*, identified by Dr. W. G. Farlow) with some bark, lichens, and feathers, measuring 11 cm. in length, 9 cm. in breadth, and 6.5 cm. in height. The cavity, 4.5 cm. deep and 4 cm. in diameter at the top, is slightly enlarged below and lined chiefly with fine bark strips and a few feathers including some from the head of the female Kinglet. The eight eggs in the nest contained small embryos. They are elliptical-ovate in outline, with the smaller end rather blunt, dull white in ground color, finely speckled all over, but especially at the larger end where a more or less distinct wreath is formed, with pale ashy-brown; on a single egg the markings are very faint. They measure in inches .54 × .41, .54 × .42, .55 × .41, .55 × .41, .55 × .41, .56 × .41, .57 × .41, .57 × .41, averaging .55 × .41.

Although on June 16, 1908, when this nest was found and taken, only a single pair of the birds was seen, I feel convinced that at least two pairs of the birds must have been nesting there, for on 6 July I saw at the same locality at least three Golden-crowned Kinglets, apparently young birds, as no crown patch was visible. Brewster found that a pair whose nest was nearly finished and being provided with lining on June 13 in Worcester County, Massachusetts, required sixteen days to complete it and lay their set of nine eggs, and that another nest nearly completed on June 16 did not acquire its full set of nine eggs until the same date (June 29). It is impossible to suppose that my pair, whose nest was taken on June 16, could

have built another nest, laid eggs, and brought out nearly fullgrown young in twenty days, and there must certainly have been at least one other pair in the vicinity. On August 4 I again saw three Kinglets at the same locality, after which date they were not seen again. One at least of those seen on this date had the crown-patch of the adult.

The first well identified nest of the Golden-crowned Kinglet seems to have been that found by H. D. Minot (*Land-birds and Game-birds of New England*, ed. 1. 56 (1877)) in the White Mountains of New Hampshire on July 16, 1876. This nest, which contained young birds, was four feet from the ground in a hemlock, pensile like the majority of recorded nests. Mr. Vickery's Lynn nest (*O. & O.* xiv. 95, 111 (1889)), which contained only three eggs, was in a spruce tree and likewise suspended from a limb. Both the nests of the Golden-crown recorded by H. Austen (*O. & O.* xiv. 93-94 (1889); xv. 106 (1890)) from the vicinity of Halifax, Nova Scotia, were "suspended . . . on twigs . . . fully three to eight inches underneath the main branch . . . fastened by the side with moss to the small branches." One of two nests of the Ruby-crown, however, was built on a limb (*l. c.* xv. 106), while the other was suspended. Brewster's account (*Auk*, v. 337-344 (1888)), the fullest that has yet appeared of the nesting of the Golden-crowned Kinglet, gives details of three nests found in Winchendon (Mass.), or vicinity, all of which were pensile.

A brief record of the taking of the present nest has already appeared in 'The Taxidermist' (no. 4, p. 7 (Oct. 1908)).—S. F. BLAKE, *Stoughton, Massachusetts*.

**A Record of Townsend's Solitaire** (*Myadestes townsendi*).—A male Townsend's Solitaire was taken at Collegeville, Minnesota, Dec. 20, 1909. Although far from its normal haunts, the bird was very active and its melodious warble broke the monotony of the winter day. Coues remarks, that this bird is "capable of musical expression in an exalted degree."

When found, it was feeding in a young evergreen grove, planted about a mile and a half from the railway station and only a few hundred feet from Observatory Hill. Dr. Thomas S. Roberts of Minnesota State University, Minneapolis, kindly verified my identification.

Ridgway (*Birds of North and Middle Am.*, Part IV, page 165) says that it has been found "straggling, in autumn or winter to Kansas (Wallace, October) . . . and northwestern Illinois (Waukegan, Dec. 16, 1875). Since its breeding range "extends from the Coast Ranges to the Black Hills of North Dakota" (Ridgway *loc. cit.*), the Minnesota record of Dec. 20, 1909, is interesting. The mounted specimen was added to the bird collection of St. John's University Museum, Collegeville, Minnesota.—SEVERIN GERTKEN, *Collegeville, Minn.*

**Regular Breeding of Alice's Thrush in Arctic East Siberia.**—In a paper entitled, Notes on the Birds and Mammals of the Arctic Coast of East Siberia (*Proc. of the New Engl. Zool. Club*, Vol. V, 1914) on page 37

we recorded the regular occurrence of Alice's Thrush — *Hylocichla aliciae aliciae* (Baird), as a breeding bird in suitable places along the coastal regions of Arctic East Siberia, west to the Kolyma. At that time we had received from Mr. Johan Koren only a set of eggs, the parent birds to which were lost, and his notes.

On a more recent trip to the same general region, in the summer of 1915, we asked Koren to look out especially for the bird and to get us a specimen. This he did, and wrote that he found Alice's Thrush breeding commonly, particularly along the smaller side streams of the Kolyma, that are overhung by alders. He sent us an adult female, No. 21800, Coll. of John E. Thayer shot at Neshon Kolymsk, June 8, 1915, which is precisely like Alaskan breeding birds.

The earlier records of Alice's Thrush in East Siberia in the breeding season are — Krit. Obz. Orn. Fauna Vost. Sibiri, 1877, 32, Cape Tschukotsk, (see Stejneger, Auk, I, 1884, 166) and Palmén, Vega — Exp., 1887, 262 Tschuktsch-halfön and Pitlekaj. These were apparently taken by Hartert as indicating only the casual occurrence of *Hylocichla aliciae* in East Siberia, and the species was not given a formal place in his Vogel der Päläarktischen Fauna.

In all probability the individuals of the Siberian colony, travel back and forth each year across Bering Sea and winter with the main bulk of the species in tropical America; just as Asiatic birds, — *Acanthapneuste borealis borealis* (Blasius); *Ananthe ananthe ananthe* (Linn.); *Cyanosylvia suecica robusta* (Burturlin); *Budytes flavus alascensis* Ridg. and *Sterna aleutica* Baird — now breeding regularly each year in Alaska still migrate southward and winter wholly on the Asiatic side of the Pacific. — JOHN E. THAYER AND OUTRAM BANGS, *Mus. Comp. Zool., Cambridge, Mass.*

**Some Unusual Records for Massachusetts.** — The Boston Society of Natural History has recently acquired the following rarities for its collection of mounted birds.

**Piranga rubra rubra** (Linne). SUMMER TANAGER. — A male taken at Deer Island, Boston harbor, Mass., April 11, 1916. The plumage and general condition of this specimen led us to believe that this bird had not been in captivity. It was taken on the window-ledge of a pumping station.

**Antrostomus carolinensis** (Gmel.) CHUCK-WILL'S-WIDOW. — An individual seen flying about the docks at East Boston, Mass., on Oct. 13, 1915, and captured by Mr. N. Hagman. It was not sexed.

**Aluco pratincola** (Bp.). BARN OWL. — A female specimen of this owl taken by Mr. Chas. Fowle on June 10, 1915, at Lexington, Mass.

**Somateria spectabilis** (Linne). KING EIDER. — An immature female taken at Newburyport, Mass., by Mr. C. H. Richardson on November 19, 1915. — W. SPRAGUE BROOKS, *Boston Soc. Nat. Hist.*

**Bird Notes from the Chicago Area.** — **Aluco pratincola.** BARN OWL. — An adult female of this species was given me by Mr. George Dunk-

ley of Chicago, who shot it while hunting Jack Snipe on the marshes in the vicinity of Hyde Lake, South Chicago, Ill., Oct. 14, 1915. The specimen is in the Harris Extension collection.

**Bubo virginianus virginianus.** GREAT HORNED OWL.—Woodruff (Birds of the Chicago Area, 1907, p. 106) says of this species, "The Great Horned Owl was a common resident many years ago, but now it is very rare." At the present time, however, individuals may frequently be seen in the more heavily wooded portions of the sand dune region, near Millers, Ind., and three nests were found in the spring of 1914, a short distance east of that village. One, located March 15 in an old Crow's nest about forty feet up a small scrub pine, contained three slightly incubated eggs. March 17, two heavily incubated eggs were collected from a nest in a cavity in the top of a very large dead pine stub, the female was shot as she left the nest. The third, from which three downy young, ranging in age from about one to five or six days old, and adult female were collected April 4,—was located in a cavity in broken off top of large dead pine tree, about twenty feet from the ground. A few miles east and outside the limits of the "Area," two more nests were found; one in old Crow's nest a few feet up a very small Scrub Pine sapling, with a two-thirds grown nestling, contained the remains of a Bittern. The other, from which three young in downy stage were secured April 4, 1915, contained the remains of a cottontail rabbit, and a half eaten Meadow Lark.

In all cases the parent birds were extremely wary, seldom even a glimpse of the male being offered, and the same was true of the female, except while incubating or brooding newly hatched young, at which times a very close approach was allowed. A very noticeable increase in the number of Ruffed Grouse seen lately in this region, may, in part, be due to the thinning out of the Horned Owls.

**Hesperisiphona vespertina vespertina.** EVENING GROSBEEK.—First noted this winter (1916) February 6, when a female was taken from a flock of four, near Mineral Springs, Ind., from which date they were noted in increasing numbers in different parts of the dune regions. Six males were secured from a flock of about seventy-five, just east of Gary, Ind., March 30, and two females the same day from a flock of about forty, near Millers. Last noted April 1, when a flock of eight was seen near Gary.

**Dendroica discolor.** PRAIRIE WARBLER.—A fine male of this species was secured May 16, 1915, in the brush near Eggers, South Chicago, Ill.—H. L. STODDARD, N. W. Harris Public School Extension of Field Museum, Chicago, Ill.

**Notes from Leon Co., Florida.—Butorides virescens virescens.**

**LITTLE GREEN HERON.**—An example of this species was seen Jan. 3 and 4, 1916, in the marshes bordering Lake Iamonia. The only thing conspicuous about it was its extreme shyness, a fruitless hour being spent in trying to collect it. The Green Heron is considered rare in the United States in winter according to the Check-List. Barring one record for the South

Carolina coast, all others come from the subtropical parts of Florida. It seems, therefore, surprising to find it so far inland, especially as freezing weather had prevailed a week previously.

**Colinus virginianus floridanus.** FLORIDA BOB-WHITE.—Mr. R. W. Williams, Jr., in his preliminary list of the birds of Leon Co. (Auk, XXI, 1904, p. 453) gives *virginianus* as the local form, although he had seen intermediates and suspected the occurrence of *floridanus* in the southern part of the county. On Horseshoe Plantation, in the extreme northern part of the county, my relatives had often spoken of shooting small dark quail, and wondered what they were. On Jan. 1, 1916, six males were shot and brought to me, all alike in size and coloration. One was preserved, and Dr. Dwight, who kindly compared it with his series, pronounces it a typical *floridanus*, making the first county record, and so far as I can find the northernmost point from which typical examples of this subspecies have been taken. In considering the status of the species in this section it should be born in mind that it is full of quail preserves which are continually being restocked with northern birds. It is now, of course, impossible to determine definitely which was the original resident form.

**Certhia familiaris americana.** BROWN CREEPER.—The only definite records for Florida that I can find are the two specimens from Leon Co. recorded by Williams. Wayne in his notes on the birds of the Wacissa and Aucilla River Regions (Auk, XII, 1895, pp. 362-367) lists the Brown Creeper but gives no information about it. It seems, therefore, advisable to record two individuals which I saw on the Horseshoe Plantation, one on Dec. 25, 1915, and another in a totally different part of the plantation on Dec. 26. Unfortunately I was at that time ignorant of the bird's rarity in Florida so made no effort to collect a specimen.—LUDLOW GRISCOM, Ithaca, N. Y.



## RECENT LITERATURE.

Ridgway's 'The Birds of North and Middle America' Part VII.<sup>1</sup>—

While less bulky than its predecessors Part VII of Mr. Ridgway's great work follows them closely in style and execution. As heretofore the footnotes are replete with synonymy and citations of types and type localities for many extralimital genera and species which render the volume a storehouse of information for those working on the neotropical avifauna, who extend their researches beyond the isthmus. For America north of Panama it is, like the preceding parts, a monograph.

As an illustration of the thoroughness of Mr. Ridgway's studies, he states on p. 108 that he has examined representatives of all of the American genera of Parrots but *Cyanopsitta*, specimens of which, by the way, are in the collection of the Philadelphia Academy.

Most of the new names that he has found it necessary to establish as the work proceeded have been published in the Proceedings of the Biological Society of Washington and we notice only two in the present volume. *Enanas plumbea chapmani* (p. 325), Guala, Ecuador; and *Zenaidura macrura caurina* (p. 348), Oregon. Mr. Ridgway's practice of proposing new names in footnotes with not even heavy-faced type to attract attention to them is unfortunate, in view of the trouble that obscurely published names have caused in the past. The latter of these new forms moreover is proposed "provisionally" based on "three very poor specimens," with a "provisional type" designated. The author is surely aware that there is no difference nomenclaturally between "provisional" and other names or types and this *Zenaidura m. caurina* must rest for all time on an admittedly unsatisfactory type specimen.

The nomenclature of the North American species differs somewhat from that of the A. O. U. Check-List. *Conuropsis carolinensis interior* appears as *C. c. ludovicianus*, the Louisiana bird belonging to the interior race in Mr. Ridgway's opinion; Linnaeus however is wrongly cited as the authority for the name. *Coccyzus minor minor* should apparently be omitted from the Check-List as all the unquestioned Florida birds seen by Mr. Ridgway are *C. m. maynardi*, while Audubon's specimen, said to be from Florida proves to be *C. m. nesiotis*. Among the doves the genera *Geotrygon* and *Columba* are subdivided, our species of the former becoming *Oreopeleia*, while *Columba fasciata* and *flavivestris* fall in *Chloroenas*, and *C. leucocephala*

<sup>1</sup> The Birds of North and Middle America: A Descriptive Catalogue of the Higher Groups, Genera, Species, and Subspecies of Birds known to occur in North America, from the Arctic Lands to the Isthmus of Panama the West Indies and other Islands of the Caribbean Sea, and the Galapagos Archipelago. By Robert Ridgway, Curator, Division of Birds. Part VII.

Family Cuculidae. Family Psittacidae. Family Columbidae. Bulletin of the United States National Museum. No. 50. Washington: Government Printing Office. 1916. [dated May 5, received May 29]. pp. i-xiii + 1-543, pll. I-XXIV.

and *squamosa* in *Patagioenas*. Following Todd, and we think rightly, the Ground Dove of the Southern States is called *Chæmepelia passerina passerina*, while the Bermuda form is regarded as identical with *C. p. bahamensis*. *Melopelia asiatica trudeaui* Aud. appears as *M. a. mearnsi* Ridgw., since Mr. Ridgway considers Audubon's description and plate to represent the eastern form. Audubon's type is in the collection of the Academy of Natural Sciences of Philadelphia (see Cat. Types in Colln. Phila. Acad. Proc. A. N. S. Phila. 1899) and proves, as Mr. Ridgway suggests, to be true *asiatica*.

The type of *Psittacula lineola* Cassin is also in this collection, as recorded in the same paper, yet Mr. Ridgway quotes a letter from Prof. Heilprin, written over thirty years ago, to the effect that it had disappeared.

In a work of such proportions however, it is inevitable that some publications are overlooked and the above facts are offered not in a spirit of criticism but to supplement the history of these cases.

All ornithologists will congratulate themselves as well as Mr. Ridgway upon the appearance of Part VII and will earnestly hope that he may be able to push the remaining parts to an early completion. The families still to be considered, while they contain, as a rule, fewer species and races, have received less critical study than those which have gone before and it is therefore greatly to be desired that we should have the benefit of Mr. Ridgway's careful treatment in them as well as in the Passerine and Picarian groups.—W. S.

**Todd's 'Birds of the Isle of Pines.'**<sup>1</sup>—Mr. Todd's latest contribution to neotropical ornithological literature is an admirable monograph of the birds of the Isle of Pines. The work is based primarily upon a collection of 842 skins obtained by Mr. Gustav A. Link of the taxidermic force of the Carnegie Museum during a residence of a year on the island, in 1912 and 1913. Much additional material was examined, however, and the literature exhaustively studied, so that practically all that is known of the bird life of the island is incorporated in this paper.

Besides the annotated list which covers 142 species, there is an outline of the Geography and Physiography of the Isle of Pines and notes on 'Climate'; 'Previous Work'; 'Seasonal Occurrence'; 'Faunal Affinities' and 'List of Localities,' as well as several half tone plates of scenery and a map.

The affinities of the fauna are naturally with that of Cuba. In fact of 126 species breeding in western Cuba, 85 are found also on the Isle of Pines, while eight others are represented there by closely related forms, only one of which is regarded by Mr. Todd as sufficiently distinct to warrant specific rank.

<sup>1</sup> The Birds of the Isle of Pines. By W. E. Clyde Todd. Ann. Carnegie Mus., Vol. X, Nos. 1-2, 1916. pp. 146-296, pl. XXII-XXVII. January 31, 1916 [received, March 6, 1916].

The annotated list follows the classification set forth in Mr. Ridgway's 'Birds of North and Middle America.' Under each species is a full bibliography for the Isle of Pines, to which, in the reviewer's opinion, might have been added a reference to the original publication of the name employed, which is usually of great assistance to those using the paper. There follows a discussion of the occurrence and habits of each species on the island, and of its systematic status.

We find described as new *Amazona leucocephala palmarum* (p. 228), Isle of Pines; *Vireo gundlachii orientalis* (p. 256) Guantánamo, Cuba; and *Holoquiscalus caymanensis dispar* (p. 276), Isle of Pines,—the last being renamed on an erratum insert *Q. c. caribæus*, *dispar* proving untenable. The species and subspecies of *Holoquiscalus* and the races of *Jacana spinosa* are considered at length and reasons are set forth for the rejection of *Podilymbus podiceps antillarum* Bangs and *Agelaius subniger* Bangs, as well as the races of *Squatarola squatarola* recently proposed by Thayer and Bangs, and the West Indian races of the Green Heron proposed by Oberholser. As Mr. Todd is confessedly not following the A. O. U. Check-List where the "latest and best authorities" differ from it, attention might be called to the fact that by Opinion 62 of the International Commission on Zoological Nomenclature (March, 1914) the genera *Herodias* and *Urubitinga* become untenable, being synonyms respectively of *Egretta* and *Morphnus*.

Mr. Todd's careful study of the material before him brings out many interesting points, among others the fact that *Sturnella magna hippocrepis* is nearest to *S. m. argutula* and not to *S. neglecta* as stated by Ridgway, while *Seiurus noveboracensis notabilis* is the form occurring on the Isle of Pines in spite of Prof. Cooke's reference of all West Indian records to typical *noveboracensis*.

The bibliography comprises 64 titles of which 42 are of articles by A. C. Read published in newspapers, 'The Oölogist,' and 'Bird Lore's' Christmas lists. Much space in Mr. Todd's list is taken up with discrediting or rejecting records of Mr. Read, which seem to be almost entirely based upon sight or upon specimens shot but not preserved. It would seem that this represents a waste of time and energy as the records which are accepted as probable are severely discounted by the obvious inaccuracy of the others. Would it not be best to ignore such publications absolutely as the surest way to discourage them in future? This however detracts in no way from Mr. Todd's admirable paper which will stand as authority on the birds of the Isle of Pines for many years to come.—W. S.

**Wetmore's 'Birds of Porto Rico.'**<sup>1</sup>—This notable paper is the first comprehensive work on the food habits of neotropical birds, besides being a handy popular list of the birds of Porto Rico. From both aspects it is most welcome, not only to residents of the island but to others as well.

<sup>1</sup> Birds of Porto Rico. By Alex Wetmore. U. S. Dept. Agr. Bull. No. 326. pp. 1-140, pll. I-X. March 24, 1916.

The immensely valuable agricultural interests of Porto Rico have suffered severely from insect pests and it seemed desirable, in seeking means to combat them, to obtain at the outset definite data on the food habits of the native birds, in order to formulate plans for the better protection of those of greatest economic importance. Mr. Alex Wetmore, Assistant Biologist of the Biological Survey, U. S. Department of Agriculture, was selected for carrying out this investigation and judging from his report a better choice could not have been made. During a residence of nine months on the island, December 13, 1911 to September 11, 1912, he visited forty-four localities obtaining 2200 stomachs and a mass of data. Upon this material and a thorough study of the literature the report has been based.

The brief introduction discusses the birds found in the various agricultural districts — the cane fields, coffee plantations, and citrus groves; and the bird enemies of some of the principal insect pests — the mole cricket, sugarcane root-borer, weevil stalk-borer and May beetle.

Then follow instructions for increasing birds, based on experience in the United States, and a discussion on the introduction of exotic species. Of several species introduced in the past, only the Hooded Weaver-finch (*Spermestes cucullatus*) has become generally distributed and fortunately it has not proved injurious. Mr. Wetmore is opposed on general principles to introducing foreign birds, but thinks it possible that the Barn Owl might be a valuable adjunct to the native avifauna as a check on the rats.

In the annotated list the several native names of each species are added to the English and technical names, and a good account of the habits, and distribution is presented. Then follows an analysis of the food, based upon the examination of stomach contents. The information thus obtained in the case of North American birds which winter in Porto Rico is of particular interest as it rounds out our knowledge of the food habits of these species.

Mr. Wetmore found the "Martinete" or native variety of the Green Heron, to be the greatest destroyer of the injurious mole cricket, while the Blackbird (*Holquiscalus brachypterus*) seems to be the greatest enemy of the root-borer. The little owl (*Gymnasio nudipes*) feeds largely upon the May beetle. There was no evidence that any of the Porto Rican birds were injurious, with the exception of two hawks which however, are not common.

Porto Rico, like the other Greater Antilles is very poor in bird species compared with Central America and Mr. Wetmore's list comprises only 162 species with 16 others, the occurrence of which he thinks requires confirmation. Of this number only about 50 are resident land birds. As an indication of the abundance of bird life on the island several censuses are given. One on May 24 at Yauco yielded 391 individuals of 35 species in four hours, over a distance of five miles; while on June 28 near Lares 335 individuals of 27 species were seen. The several half tone plates represent Porto Rican birds from drawings by Fuertes and photographs of stomach contents.

Mr. Wetmore's report will serve a valuable purpose in stimulating inter-

est in the birds of the island among the residents and the author is to be congratulated upon an admirable piece of work.— W. S.

**Hersey's 'List of Birds Observed in Alaska and Siberia.'**<sup>1</sup>— Mr. Hersey's trip along the Alaskan coast during the summer of 1914 was undertaken in the interest of Mr. A. C. Bent to obtain data for his continuation of the 'Life Histories of North American Birds.' Notes on 105 species are contained in the list of which 74 are water-birds.

The "repeated occurrence" of Fisher's Petrel (*Æstrelata fisheri*) was one of the pleasures of the trip, but the scarcity of the Emperor Goose and Spectacled Eider seems to point to the greatly increased rarity of these species in the near future.

The practice of treating two species collectively in the annotated list is unfortunate as it leads to ambiguity. On p. 13 for instance it is impossible to tell whether the four gulls that followed the vessel to Ketchikan included any Western Gulls or whether they were all Herring Gulls. If any of the former were present the occurrence constitutes a new record for Alaska.

Mr. Hersey's list is a welcome addition to the literature of the Alaskan coast and the western arctic region, and the extensive notes obtained for Mr. Bent will doubtless add largely to the accuracy and interest of his accounts of the northwestern waterfowl.— W. S.

**Brooks' 'Notes on Birds from East Siberia and Arctic Alaska.'**<sup>2</sup>— Messrs. W. Sprague Brooks and Joseph Dixon accompanied the 'Polar Bear' hunting party, organized by graduates of Harvard University in the spring of 1913, and remained in the Arctic regions for some fifteen months, making collections for the Museum of Comparative Zoölogy. The paper before us comprises Mr. Brooks' report on the birds, of which 160 species were observed. Notes of interest on the habits and distribution of many of the species are presented. Five forms are considered worthy of differentiation. A gull from Ellesmere Land allied to *L. kumlieni* is named *Larus thayeri* (p. 373) in honor of Col. J. E. Thayer through whose generosity the collection was obtained. The other new forms are *Histrionicus h. pacificus* (p. 393), Cape Shipunski, Kamchatka, including all the Pacific coast Harlequins; *Edemia deglandi dixonii* (p. 393), Humphrey Pt., Alaska; *Nannus hiemalis semidiensis* (p. 400), Semidi Islands, Alaska; *Leucosticte griseonucha maxima* (p. 405), Commander Islands.

Messrs. Brooks and Dixon deserve much credit for securing so many interesting specimens and for visiting so many localities. They have added materially to our knowledge of the birds of the great northwestern arctic coast.— W. S.

<sup>1</sup> A List of the Birds Observed in Alaska and Northeastern Siberia During the Summer of 1914. By F. Seymour Hersey. Smithsonian. Misc. Collns. Vol. 66, No. 2, pp. 1-33. 1916.

<sup>2</sup> Notes on Birds from East Siberia and Arctic Alaska. By W. Sprague Brooks. Bull. Mus. Comp. Zool. Vol. LIX, No. 5. pp. 361-413. September, 1915.

'**The Birds of Australia.**'<sup>1</sup>—Volume five of Mr. Mathews' great work is to be issued in four instead of three parts as previously announced and the second of these is before us. It continues the treatment of the Raptores covering the Kites, part of the Falcons and a few other species. The same lengthy discussion of nomenclature characterizes this number, which has figured in its predecessors.

The genus *Falco* as presented in the A. O. U. Check-List seems to Mr. Mathews to be a bad case of "lumping" and while he would admit that *Rhynchodon* is perhaps a subgenus, he claims that *Hierofalco*, *Tinnunculus* and *Cerchneis* are perfectly good genera.

We note *Haliastur sphenurus sarasini*, subsp. nov. (p. 169), New Caledonia, *Lophastur subcristatus kemp*, subsp. nov. (p. 220), Cape York, Australia; and *Falco longipennis samueli*, nom. nov. (p. 232) for *F. melanotus* White and Mellor, Flinders Island, Australia; as new names.—W. S.

**Cassinia, 1915.**<sup>2</sup>—The proceedings of the Delaware Valley Ornithological Club for 1915 show a continuation of the remarkable vitality that characterizes this organization. An average attendance of 24 at the 16 meetings held during the year is reported, and no fewer than 53 observers submitted migration records. Upon the material contained in these reports is based Dr. Stone's annual résumé of the spring migration. That of 1915 was characterized by abnormally early arrival of species coming in April or earlier and irregular occurrence of the later migrants. Dr. Stone contributes also another of the series of biographies he has published in 'Cassinia,' the present being that of Titian Peale. Other articles include 'Nesting birds of Pocono Lake,' with excellent illustrations of the nests of 2 species, of Empidonax, by J. Fletcher Street; 'Days with the Blue-gray Gnatcatcher and the Prothonotary Warbler' by Geo. H. Stuart 3rd, in which no locality is cited, a protective measure no doubt, yet even a county record would have added to the scientific value of the article; 'Eggs and Nestling Destruction' by Julian K. Potter, showing an average loss of 40 per cent, large yet less than some other studies have brought out; and 'Mortality among birds at Philadelphia, May 21-22, 1915,' by Delos E. Culver, an account of migrants striking the City Hall. This issue of 'Cassinia' contains also a bibliography of Pennsylvania, New Jersey, and Delaware ornithology for 1915, and a list of officers and members of the D. V. O. C.—W. L. M.

**Bangs on New American Birds.**<sup>3</sup>—A recent study of the Gallinules of America convinces Mr. Bangs that Hartert's view that they are best re-

<sup>1</sup>The Birds of Australia. By Gregory M. Mathews. Vol. V, Part II. London. February 29, 1916.

<sup>2</sup>Proceedings of the Delaware Valley Ornithological Club, 19, 1915 (March, 1916). 72 pp., 2 pls.

<sup>3</sup>The American Forms of *Gallinula chloropus* (Linn.). By Outram Bangs. Proc. N. E. Zool. Club, Vol. V, pp. 93-99. May 17, 1915.



garded as subspecies of the Old World *Gallinula chloropus* is correct. Besides *G. c. galeata* here restricted to southeastern South America, he recognizes four other races *G. c. garmani* Allen, from the Andes; *G. c. cercheris* Bangs, from the Lesser Antilles; and two here described as new *G. c. pauxilla* (p. 96), Rio Cauca, western Colombia; and *G. c. cachinnans* (p. 96) type from De Soto Co., Florida, for the North American bird.

In another paper<sup>1</sup> the smaller Mockingbird of the northern Bahamas is separated as *Mimus polyglottos delenificus*, type locality Andros Island; and in conjunction with Mr. John E. Thayer<sup>2</sup> the Song Sparrow of Nova Scotia is described as *Melospiza melodia acadica* (p. 67), type locality Wolfville.—W. S.

**Swarth on the Pacific Coast Races of Bewick's Wren.**<sup>3</sup>—From an examination of 597 skins, nine races are recognized.

Two other forms are "pointed out and their characteristics described, but no names affixed," because "it is impossible to indicate more than obscure average distinctions" and because the "extreme variability of even the most strongly marked of the described forms militates against" their recognition. The author fears possible criticism of his action but we think it will meet with very general endorsement.

Mr. Swarth's study is a very painstaking one, abounding in minute data, and will be a great help to those who wish to name their specimens, for to many who do not have a series of 500 skins for comparison this is by no means an easy task. There are some helpful suggestions to the A. O. U. Committee as to defining of the ranges of *spilurus* and *charienturus* in view of their refusal to recognize the poorly defined race *drymæcus*.—W. S.

**Murphy and Harper on New Diving Petrels.**<sup>4</sup>—In their studies of the family Pelecanoididae Messrs. Murphy and Harper have found two unnamed forms of the curious little Diving Petrels which so closely parallel in size and appearance the Murrelets of the northern hemisphere. These are named in the present paper, *Pelecanoides urinatrix chathamensis* (p. 65), Chatham Islands; and *P. georgica* (p. 66) South Georgia Island.—W. S.

**Chapin on the Pennant-Winged Nightjar.**<sup>5</sup>—During his sojourn in the great Equatorial forest of Central Africa, Mr. Chapin secured

<sup>1</sup> The Smaller Mockingbird of the Northern Bahamas. By Outram Bangs. Proc. N. E. Zool. Club, Vol. VI, p. 23. March 29, 1916.

<sup>2</sup> A New Song Sparrow from Nova Scotia. By John E. Thayer and Outram Bangs. Proc. N. E. Zool. Club, Vol. V, pp. 67-68. May 29, 1914.

<sup>3</sup> The Pacific Coast Races of the Bewick Wren. By Harry S. Swarth. Proc. Cal. Acad. Sci., Vol. VI, No. 4, pp. 53-85, pl. 2. May 8, 1916.

<sup>4</sup> Two New Diving Petrels. By Robert Cushman Murphy and Francis Harper. Bull. Amer. Mus. Nat. Hist., XXXV, pp. 65-67. April 1, 1916.

<sup>5</sup> The Pennant-winged Nightjar and its Migration. By James P. Chapin. Bull. Amer. Mus. Nat. Hist., Vol. XXXV, pp. 73-81. Scientific Results of the Congo Expedition. Ornithology, No. 3. April 12, 1916.

specimens of this curious Nightjar only during March and July. Suspecting that these records might indicate a migration he has recently made a thorough study of the published records of the species and finds his surmise to be correct.

All the breeding records of *Cosmetornis* (September-January) are in southern Africa below the Equatorial forest, while all records from March to July are from the more or less open country north of the forest. We thus have a regular migration across the equator of a distinctly tropical bird, which is obviously different in origin from the great movement of migratory species in the north temperate and arctic regions.

As a possible incentive, Mr. Chapin suggests the great abundance of flying termites in the grasslands north of the forest from April to August. These "white ants" are eagerly devoured by the Nightjars which gather in large flocks to catch them. Mr. Chapin seems to have worked out his problem convincingly and his paper is one of much interest.—W. S.

**Bangs on Birds from the Cayman Islands.**<sup>1</sup>—A complete collection of the resident birds of the three Cayman Islands, recently obtained by Mr. W. W. Brown and now the property of the Museum of Comparative Zoölogy, forms the basis of a paper by Mr. Bangs. Thirty-seven forms are listed of which *Amazona leucocephala hesternus* (p. 308), Cayman Brac, is described as new. Many notes on the plumage and relationship of the various species are given and a review of the races of *Tiaris olivacea*. The paper forms a valuable contribution to West Indian Ornithology.—W. S.

**Cherrie on New South American Birds.**<sup>2</sup>—Of the four hundred odd species of birds secured on the Roosevelt South American Expedition some naturally proved to be new, and these Mr. Cherrie has carefully described in the present paper. They are as follows: *Chatura chapmani viridipennis* (p. 183), Doze Octubre; *Celeus roosevelti* (p. 183), Tapirapoan; *Myrmotherula kermi* (p. 184), Barão Melgaco; *Rhopoterpe torquata tragicus* (p. 184), Rio Roosevelt; *Synallaxis rufogularis*, (p. 185), Barão Melgaco; *Phacellodomus ruber rubicula* (p. 186), San Lorenzo River; *Philydor erythrocerus lyra* (p. 186), Rio Roosevelt; *Xiphocolaptes major saturatus* (p. 187), and *Myiopagis viridicata rondoni* (p. 188), Urucum near Corumba; *Sporophila hypoleuca clara* (p. 188), San Lorenzo River — all from Matto Grosso, Brazil.

*Picolaptes angustirostris prædatus* (p. 187), Concepcion del Uruguay; *Myospiza manimbe nigrostriata* (p. 189), Rio Negro, Paraguayan Chaco; and *Thraupis palmarum duvida* (p. 90), Rio Roosevelt, Amazonia.

<sup>1</sup> A Collection of Birds from the Cayman Islands. By Outram Bangs. Bull. Mus. Comp. Zool., Vol. LX, No. 7, pp. 303-320. March, 1916.

<sup>2</sup> Some apparently undescribed Birds from the Collection of the Roosevelt South American Expedition. By George K. Cherrie. Bull. Amer. Mus. Nat. Hist., XXXV, Art. VII, pp. 183-190. May 20, 1916.

The supplementary expedition which will shortly be in the field is expected to gather much additional information on the birds of this region for incorporation in the final report of the Roosevelt Expedition.— W. S.

**Todd on New Neotropical Birds.**<sup>1</sup>— In two recent papers Mr. W. E. Clyde Todd describes twenty-two new forms of neotropical birds. Eleven of these are from Colombia, seven from Bolivia, two from Argentina and one each from Venezuela and the Isle of Pines. The descriptions are very brief, but where size is used as a differential character measurements of the type specimens are always given.— W. S.

**Forbush on The Domestic Cat.**<sup>2</sup>— In 'Notes and News' of 'The Auk,' 1914, p. 145, attention was called to the seriousness of the cat problem and in the two years that have elapsed since then the destruction of wild birds, especially nestlings, by stray cats and uncontrolled pets has brought the question squarely before thousands of bird students, who have so carefully watched and protected broods of young in the nest, only to see them fall prey to the neighbor's pet cat. Mr. Forbush's timely 'bulletin' covers all phases of this subject—the history and characteristics of the cat; numbers of cats, food of cats, economic value and means of controlling the cat.

His evidence seems to show pretty conclusively that traps are a far better check on rats and mice than cats are. This reduces the excuses for keeping cats to the desire for a pet or companion, and for such purposes the public should compel the cat owners to have their pets licensed and kept strictly on their own property. This is insisted on in the case of dogs and the sooner it is done with cats the better. The constantly increasing army of bird lovers who will not tolerate roving cats will find a mine of information in Mr. Forbush's report which can be spread broadcast with profit.— W. S.

**The Official List of Generic Names.**<sup>3</sup>— Systematic Zoölogists will welcome any action that makes for uniformity and stability in nomenclature, and consequently will heartily endorse the attempt of the International Commission to establish an "official" list of genera. The plan is to invite advisory committees in various branches of zoölogy to submit lists of generic names which they agree are valid under the Code and which

<sup>1</sup> Preliminary Diagnoses of Apparently New South American Birds. By W. E. Clyde Todd. Proc. Biol. Soc. Wash., Vol. XXVIII, pp. 79-82. April 13, 1915.

Preliminary Diagnoses of Seven Apparently New Neotropical Birds. By W. E. Clyde Todd. Proc. Biol. Soc. Wash., Vol. XXVIII, pp. 169-170. November 29, 1915.

<sup>2</sup> The Domestic Cat. Bird Killer, Mouser and Destroyer of Wild Life. Means of Utilizing and Controlling It. By Edward Howe Forbush, State Ornithologist. Economic Biology — Bulletin No. 2. Massachusetts State Board of Agriculture, pp. 1-112. 1916.

<sup>3</sup> Opinions Rendered by the International Commission on Zoölogical Nomenclature. Opinion 67. One Hundred and Two Birds Names Placed in the Official List of Generic Names. Smithsonian Inst. Publ. 2409, pp. 177-182. April, 1916.

the Commission can then recommend for adoption in an Official List as authorized by the Gratz International Zoological Congress.

The Ornithological Advisory Committee consisting of Allen, Hartert, Hellmayr, Oberholser, Richmond, Ridgway, Stejneger and Stone, submitted a list of 189 of the more common and more important generic names of birds with references, genotypes, and method of type designation. This list was sent to 350 zoölogists and zoölogical institutions throughout the world as well as to 44 specialists on ornithological nomenclature. As a result objection of some sort or other was raised against 87 names and these were referred back to the Advisory Committee for further opinion as to whether the objections have any weight under the Code.

The remaining 102 names against which no question has been raised are forthwith added to the list.

At first thought it would seem preferable to consider this matter chronologically, publication by publication, but it will, we think, be admitted that the plan adopted, of selecting the more familiar and important genera first, is the better, as it will at once establish uniformity in the names most frequently used. The majority of those who desire to use correct names have neither the time nor the technical experience to work the questions out for themselves by the Code, and an international standard list will fill a long-felt want and do more for stability of nomenclature than anything else. Dr. C. Wardell Stiles, Secretary of the Commission and Dr. Charles W. Richmond, Secretary of the Advisory Committee on Ornithology deserve the thanks of ornithologists for the thorough manner in which they have handled the work and we hope to see the 'Official List' grow apace on the lines they have established.—W. S.

**Aves of the Zoological Record 1914.**<sup>1</sup>—Only those who have labored upon bibliographies can appreciate the magnitude of the task of compiling the ornithological titles of an entire year; and when we realize the absolute necessity of such compilations to systematic work we appreciate our indebtedness to Mr. Slater. He lists for 1914 a total of 1088 titles as against 1576 for 1913 and 1665 for 1912—sad evidence of the effect of the war. The 'International Catalogue of Scientific Literature' having been discontinued until after the war, the Zoological Society has assumed the publication of the 'Zoological Record' thereby conferring a great favor upon all zoölogists.—W. S.

**Recent Papers by Hartert.**—In 'Novitates Zoologicae' for April, 1916, Vol. XXIII, Dr. Ernst Hartert has a number of important contributions. Under the title 'Notes on Pigeons' he demonstrates that *Streptopelia decaocto* is the correct name for the Indian Turtle-Dove and that *S. roseogrisea* is probably the ancestor of the tame bird. Other groups are

<sup>1</sup> Zoölogical Record, Vol. LI. 1914. Aves. W. L. Slater. Zool. Soc. London. January, 1916. pp. 1-77. Price, six shillings.

discussed and the following proposed as new *Streptopelia senegalensis phænicophila* (p. 82) "south of the Atlas in Algeria, Tunisia and Morocco,"—no type mentioned! *S. chinensis vacillans* (p. 83), Mengtsze, Yunnan, *Columba leuconota gradaria* (p. 85), Sungpan, China; *C. junonia* (p. 86) for the Canary Pigeon *C. laurivora* auct. Under 'Notes on Glareola' the nomenclature of several forms is considered. He also discusses the 'Occurrence of *Erolia bairdii* in South-west Africa'; 'The Correct Name of the 'Long-toed Stint'—which proves to be *subminuta*; 'On the Forms of *Burhinus oedipnemus*'—*B. o. astutus* (p. 93), Fao, Persian Gulf, n. sp.; 'On the Birds Figured in the Atlas to Krusenstern's Voyage Round the World' and 'Errors in Quotations'—20 errors among a portion of the Palearctic waders in the British Museum 'Catalogue of Birds'!—W. S.

**White on the Birds of Interior South Australia.**<sup>1</sup>—Capt. S. A. White accompanied a government expedition to the Musgrove Ranges of the little known northwestern South Australia, being in the field June 17 to September 3, 1914. In the report of the scientific results of the trip which is before us Capt. White has contributed the narrative and the accounts of the aborigines and the birds. Eight other sections by specialists treat of the other collections obtained. The account of the journey by camels through this desert country is extremely interesting and the constant allusions to birds give one a vivid picture of the habitats and habits of many species. The annotated list of 93 species gives further details of distribution and relationships. Among them the following are described as new.

*Barnardius zonarius myrtæ* (p. 745), Horseshoe Bend, Finke River, Central Australia; *Smicrornis brevirostris matthewsi* (p. 749), Wantapella Swamp; *Lewinornis rufiventris maudeæ* (p. 749), Officer Creek, Everard Range.—W. S.

**Life of Tegetmeier.**<sup>2</sup>—A biography of the late W. B. Tegetmeier by E. W. Richardson has lately been published by Witherby & Co. Mr. Tegetmeier was best known as the 'Father of Pigeon Fanciers' in England and as an authority on the rearing of poultry and on bee keeping. He was a close associate and collaborator of Darwin and a member of the British Ornithologists' Union, while for fifty years he was a writer on the London 'Field.' His long and active life of ninety-six years brought him in contact with many men of prominence, both in scientific and other circles and his biography is consequently of unusual interest.—W. S.

**Recent Publications on Bird and Game Protection.**—The most important of the recent publications of this sort is the second set of 'Pro-

<sup>1</sup> Scientific Notes on an Expedition into the Northwestern Regions of South Australia. Trans. Roy. Soc. of South Australia. Vol. XXXIX, 1915, pp. 707-842, plates XLIV-LXX.

<sup>2</sup> A Veteran Naturalist, Being the Life and Work of W. B. Tegetmeier. By E. W. Richardson. Witherby & Co., 326 High Holborn, London. 1916. pp. i-xxiv + 1-232. Numerous illustrations. Price 10s. net.

posed Regulations for the Protection of Migratory Birds.' This follows the plan of its predecessor issued three years ago, but is less complicated, the open seasons having been changed so as to require fewer exceptions, and coincide with requests from sportsmen in various sections. This schedule should be carefully studied by all interested in game bird preservation.

'Bird Notes and News' shows that interest in bird protection in England continues in spite of the war while several articles treat of birds observed in France, in the trenches, and at Gallipoli.

Mr. Forbush's 'Eighth Annual Report' as State Ornithologist of Massachusetts is as usual replete with interesting facts and attractive illustrations.—W. S.

**The Dissemination of Virginia Creeper seeds by English Sparrows.**—Under a title substantially the foregoing, Bartle T. Harvey, in a recent number of *The Plant World*<sup>1</sup> describes observations on the point specified which he made in Colorado. Seeds gathered from excrement beneath an English Sparrow roost, gave a higher percentage of germination and produced stronger seedlings than others gathered directly from the plant. On fifty square feet of ground under the roost, 70 Virginia Creeper seedlings were found. The writer concludes, therefore, that under certain circumstances the English Sparrow may be an important agent in the dissemination of Virginia Creeper seeds. For further information on birds that feed on Virginia Creeper see 'The Auk,' Vol. 23, No. 3, July, 1906, pp. 346-347.—W. L. M.

#### The Ornithological Journals.

**Bird-Lore.** XVII, No. 2. March-April, 1916.

The World's Record for Density of Bird Population. By Gilbert H. Grosvenor.—Fifty-nine pairs of birds nesting on one acre (12 species), including 26 pairs of Martins and 14 of House Wrens.

The Spring Migration of 1915 at Raleigh, N. C. By S. C. Bruner and C. S. Brimley.—Species arriving up to April 10, were 5 to 14 days late.

First Efforts at Bird Photography. By H. I. Hartshorn.

The Interesting Barn Owl. By J. W. Lippincott.

The Migration of North American Birds.—Bush-Tits, etc. By W. W. Cooke.—With plumage notes by F. M. Chapman and colored plate by Fuertes.

**Bird Lore.** XVIII, No. 3. May-June, 1916.

The Chipping Sparrow. By Newton Miller.

A Domestic Tragedy. By Julia Moesel.—Cowbird in Blue-headed Vireo's Nest.

<sup>1</sup> Vol. 18, No. 8, August, 1915, pp. 217-219.



Some Experiences in Attracting Birds.— The Nesting of a Red-breasted Nuthatch. By Henry S. Shaw, Jr.

Notes on Plumages of North American Birds. By F. M. Chapman.— Thrasher, Catbird and Mockingbird.

Editorial Obituary of Wells W. Cooke, with portrait.

**The Condor.** XVIII, No. 2. March–April, 1916.

Sea Gulls at the Panama-Pacific International Exposition. By Joseph Mailliard.— Numerous photographs.

Characteristic Birds of the Dakota Prairies. IV. On the Lakes. By Florence Merriam Bailey.

The Farallon Rails of San Diego County. By L. M. Huey.

The Nutterackers of Yellowstone Park. By M. P. Skinner.

A Chapter in the Life History of the Wren Tit. By W. C. Newberry.

The New Museum of Comparative Oölogy. By W. L. Dawson.

Notes on Some Land Birds of Tillamook County, Oregon. By S. G. Jewett.

**The Oölogist.** XXXIII, No. 3. March 15, 1916.

Entire number devoted to instructions for the preparation and care of eggs and nests.

**The Oölogist.** XXXIII, No. 4. April 15, 1916.

The Northern Pileated Woodpecker. By S. S. Dickey — Nesting habits in Pennsylvania.

**Bluebird.** VIII, No. 3. February, 1916.

Good illustrated articles on the nesting of the Red-winged Blackbird and Whip-poor-will by Edw. L. Jack.

**Bluebird.** VIII, No. 4. March, 1916.

A Rare Musician. By Cordelia J. Stanwood — White-throated Sparrow.

**The Ibis.** X series. IV, No. 2. April, 1916.

A List of Birds collected in Uganda and British East Africa, with Notes on their Nesting and other Habits.— Part I. By V. G. L. van Someren. — Annotated list of 228 species exclusive of the Passeres.

A Note on the Emperor Goose (*Philacte canagica*) and on the Australian Teal (*Nettion castaneum*). By F. E. Blaauw.

Bird-parasites and Bird-phylogeny. By L. Harrison.— A striking paper. The classification of the Tubiferae constructed entirely from a study of their parasitic Mallophaga corresponds almost exactly with that of Forbes based upon the structure of the birds. The author finds transference of parasites from one kind of bird to another very rare and that their evolution has been much slower than in the case of their hosts.

On the Coloration of the Mouths of Birds. By C. F. M. Swynnerton.— An interesting discussion of warning and directive coloration.

On Some New Guinea Bird-names. By G. M. Mathews.— In this discussion of the nomenclature of Ogilvie Grant's recent report on the birds collected by the B. O. U. Expedition to New Guinea we note the following new names, *Mimeta granti* (p. 297) for *Oriolus striatus* Q. and G.

In a reply to this criticism Mr. Ogilvie Grant, admits some of the errors

and in most of the others takes refuge behind such time honored arguments as "current usage," "obvious mistake" and others not recognized by the International Code of Nomenclature.

Studies on the Charadriiformes. IV. An Additional Note on the Sheath-bills: V. Some Notes on the Crab-Plover (*Dromas ardeola* Paykull). By P. Lowe.

The Denudation of the Shaft in the Motmot's Tail. By H. D. Astley.—The barbs on a captive bird dropped off naturally to form the terminal racquet and were not picked off by the bird.

**Bulletin of the British Ornithologists' Club.** No. CCXIII. February 22, 1916.

Dr. Hartert describes *Iole philippensis saturator* (p. 58), Mindanao; Dr. Hartert and Dr. van Someren propose *Smithornis capensis medianus* (p. 59), Kyambu Forest, Africa; Mr. Mathews describes *Sauropatis sordida colcloughi* (p. 61), Mud Island, near Brisbane, Queensland.

**Bulletin of the British Ornithologists' Club.** No. CCXIV. March 25, 1916.

New birds described by Dr. Hartert, *Scolopax rusticola mira* (p. 64), Amami Oshima, Riu Kiu Isls. *Coracina novahollandiae kuehni* (p. 65), Kei Islands, by Mr. Ogilvie Grant, *Celtia sumatrana* (p. 66), Korinchi Peak, Sumatra.

Capt. Ingram describes the nestling plumage of various terns, showing that the species of *Sterna* fall into two groups.

**Bulletin of the British Ornithologists' Club.** CCXV. April 27, 1916.

New birds are described by Rothschild and Hartert as follows: *Rhipidura cockerelli septentrionalis* (p. 73), Bongainville, Solomon Isls.; *R. c. interposita* (p. 73), Isabel Isl.; *R. c. lavellæ* (p. 74), Vella Lavella Isl.; By Dr. Hartert: *Tchitrea paradisi borneensis* (p. 75), Borneo. By G. M. Mathews: *Collocalia francica yorki* (p. 77), Cape York, Australia.

**British Birds.** IX, No. 10. March 1, 1916.

On "Wait and See" Photography. By E. L. Turner.—Studies of Lapwing, Moorhen and Coot. Jacksnipe and Heron in No. 11. Plover, Ducks and Tern in No. 12.

**British Birds.** IX, No. 11. April 1, 1916.

Manx Ornithological Notes: 1914-15. By P. G. Ralfe.

**British Birds.** IX, No. 12. May 1, 1916.

The Moults of the British Passeres, with Notes on the Sequence of their Plumages. By H. F. Witherby — Part iv, Larks.

**Avicultural Magazine.** VII, No. 5. March, 1916.

Notes on Waders seen in the Isles of Scilly. By E. I. Dorrien-Smith.

Birds in Flanders During the War. By Col. W. Tweedie.

**Avicultural Magazine.** VII, No. 6. April, 1916.

The Motmot. By H. D. Astley.—Discusses origin of racquets on the tail feathers.

Whiskey Jack and Another. By A. Trevor-Battye.—Habits.

**Avicultural Magazine.** VII, No. 7. May, 1916.

The Owl Parrot. By G. Renshaw — History and threatened extinction. Observations on the Birds in a Suburban Garden. [In England].

By A. A. Goodall.

Egg Markings and Sunlight. By A. G. Butler.— Sunlight and heat considered to affect intensity of coloration.

**The Emu.** XV, Part 4. April, 1916.

Avifauna of New South Wales Islands. By A. F. Bassett Hull.

Some Considerations on Sight in Birds. By Dr. J. C. Lewis.— General account of structure of the bird's eye, with citation of old and rather unconvincing experiments to prove exceptional powers of sight.

Eggs of Reptiles and Birds Compared, with Some Unusual Examples of the Latter. By R. W. Shufeldt.

Some Tasmanian Birds' Nests. By H. Stuart Dove.

Observations on Albatrosses at Sea. By E. W. Ferguson.— Discussion of plumage, etc., of a number of species. A series of excellent photographs of Australian birds is published in this number.

**The South Australian Ornithologist.** II, Part 6. April 1, 1916.

Notes on the Mallee Fowl. *Leipoa ocellata rosinae*. By T. P. Bell-chambers.— Incubation is given as from 58 to 77 days in captive birds.

An Ornithological Trip in St. Vincent and Spencer Gulfs. By A. G. Morgan.— Notes on 60 species.

A Sketch of the Life of Samuel White (continued). By S. A. White.

**The Austral Avian Record.** III, No. 3. April 7, 1916.

Some 76 new species and subspecies are here described together with the genera: *Rahcinta* (p. 58) for *Atrichia clamosa*; *Leachena* (p. 60) for *Epthianura crocea*. The descriptions are so meagre as to be almost worthless and in many cases size is used as a differential character but no measurements are given. Worse than all there is no indication of where the type specimen may be found, and no range for the new forms is given.

While Mr. Mathews has done wonders in searching the literature to settle the status of various old names which have caused endless trouble, his good work is offset by the carelessness of such descriptions as these. If a thing is worth describing at all it is worth describing well, and nothing will cause the summary rejection of his proposed new subspecies more quickly than this slovenly method of presenting them. 'The Auk' has taken the same stand impartially in the cases of all who are guilty of similar offences. If systematic ornithology is to be kept from becoming the laughing stock of zoologists, it is high time that such practices should cease.

**Revue Française d'Ornithologie.** VIII, No. 83. March 7, 1916. [In French.]

Biological Observations on the Birds of the Kerguelen Islands. By J. Loranchet (continued in April).

Contribution to the Ornithology of Provence. By J. L'Hermitte (continued in April).

**Revue Française d'Ornithologie.** VIII, No. 84. April 7, 1916.

The Ornithological Park of Vellers-Bretonneux. By J. Delacour (continued in May number).

**Ardea.** V, No. 1. April, 1916. [In Dutch.]

On the Migration of Birds in Holland in 1915. By Dr. H. Ekama.—Arrival dates for many localities.

On the Breeding of Some Exotic Birds at Gooilust during 1915. By F. E. Blaauw.—*Philacte canagica* and *Cygnus buccinator* among others.

**Messenger Ornithologique.** VII, No. 1. [In Russian.]

Some Observations on the Birds of the Povenietz District, Govt. Olonetz. By P. I. Ispolatoff.

On the Biology of the Marsh Warbler (*Acrocephalus palustris*). By S. G. Shtoeher.

On Some Swallows from Russian Turkestan. By N. A. Zarudny.—*Riparia riparia plumipes* (p. 34) subsp. nov.

Notes on *Perisoreus infaustus* and subspecies. By S. A. Buturlin.—*P. i. yakutensis* (p. 39), Achichey, Kolyma Dist.; *P. i. sakhalinensis* (p. 40), Saghalien; *P. i. ruthenus* (p. 40), Sofrino, Moscow Govt.; are described as new. The first is the bird known as *P. i. sibericus* (Bodd.) which name is regarded as not recognizable. The last is the bird of European Russia. Six forms, in all, are recognized but *P. i. opicus* Bangs is not placed as Mr. Buturlin has never seen or heard of a specimen with a "black" cap.

On the Question of the Status of the White-winged Magpie. By A. N. Karamsin.

*Cyanistes pleskei* and *Muscicapa atricapilla sibirica* are discussed in other papers.

Birds Collected by A. P. Velezhanin in the Basin of the Upper Irtysh. By G. I. Poliakov (continued and completed in No. 2.)

**Messenger Ornithologique.** VII, No. 2.

Materials for a Bird Fauna of N. W. Mongolia. By A. I. Tugarinow.

Contribution to our Knowledge of the *Remiza* of the Turkestan Region. By N. A. Zarudny.

On the Russian Species of *Coccothraustes*. By Prince A. Koudashev.—*C. c. tatjanae* (p. 96) subsp. nov. Six forms recognized.

Note on the Distribution of *Regulus r. buturlini*. By S. A. Buturlin.

*Muscicapa atricapilla tomensis* nom. emend (p. 101). By H. Johansen.

On the Spring Migration of the White Stork. By A. A. Browner.

**Falco.** XI, No. 2. December, 1915. [In German.]

Contains descriptions of the British races of *Passer domesticus* and *Strix alba*, under the new names *Passer hostilis* (p. 18), and *Strix hostilis* (p. 19). The author, O. Kleinschmidt, states that his subspecies will probably have a hostile reception in their native country and explains that he does not name them in the interests of British Ornithology but in accordance with the thoroughness of German science!

Ornithological Articles in Other Journals.<sup>1</sup>

**Oldys, Henry.** Are Our Birds Decreasing or Increasing. (Amer. Mus. Journal, March, 1916.) — Emphasizes the large element of error in any estimate. Consensus of opinion of those best qualified to judge seems to be that generally speaking our insectivorous birds are more numerous than in the days of the early settlers. Some have undoubtedly increased, others decreased and it is difficult to make any average or general statement.

**Weston, F. M., Jr.** Notes on Charleston, S. C. birds. (Bull. Charleston Museum, March, 1916.)

**Saunders, W. E.** Birds of Algonquin Park. (Ottawa Naturalist, February, 1916.)

**Saunders, W. E.** The Magpie in Western Ontario. (Ottawa Naturalist, April, 1916.)

**Terrill, L. McI.** Unusual Bird Records at Montreal. During the Fall and Winter. (*Ibid.*)

**McWilliam, J. M.** Notes on the Birds of Linlithgow Loch. (Zoologist, March 15, 1916.)

**Boyd, A. W.** Birds Seen During the Dardanelles Campaign. (Zoologist, April 15, 1916.)

**Selous, Edmund.** A Diary of Ornithological Observations made in Iceland during June and July, 1912 (continued). (*Ibid.*)

**Clyne, Robert.** Movements of the Gannet as Observed at the Butt of Lewis. (Scottish Naturalist, March, 1916.)

**Rintoul, L. J. and Baxter, E. V.** Continental Racial Forms of Scottish Breeding Birds and their Occurrences in Scotland. (*Ibid.*)

**Despott, Guisepe.** The Breeding Birds of Malta. (Zoologist, May 15, 1916.)

**McWilliam, J. W.** Bartram's Sandpiper in Ireland. (*Ibid.*)

**Noble, G. K.** A New Dove from St. Croix, Danish West Indies. (Proc. N. E. Zool. Club, V, pp. 101-102, Oct. 4, 1915.) — *Zenaida zenaida lucida* (p. 101).

**Jacobs, J. W.** The Glory of a Man who has Killed over Four Thousand Hawks in his Lifetime. (Separately published by the author.) — A strong exploitation of the value of hawks.

**Bangs, O.** Three New Subspecies of Birds from Eastern Mexico and Yucatan. (Proc. Biol. Soc. Washington, XXVII, pp. 125-126, May 27, 1915) — *Tityra semifasciata deseí* (p. 125), Chichen Itza; *Turdus migratorius phillipsi* (p. 125), Las Viegas, Vera Cruz; *Cyanocompsa parcellina beneplacita* (p. 126), Santa Leonor, Tamaulipas.

<sup>1</sup> Some of these journals are received in exchange, others are examined in the library of the Academy of Natural Sciences of Philadelphia. The Editor is under obligations to Mr. J. A. G. Rehn for a list of ornithological articles contained in the accessions to the library from week to week.

**Chandler, Asa C.** A Study of the Structure of Feathers with Reference to their Taxonomic Significance. (Univ. of Cal., Publ. Zool., XIII, pp. 243-446, 1916.) — This is a bulky thesis describing in great detail the feathers of several types in most of the major groups of birds. The meagreness of conclusions seems out of proportion to the mass of description, and most of the suggestions that are made, of changes in the classification of birds on the basis of feather structure, are so obviously at variance with evidence derived from other sources as to be hardly worthy of serious consideration. The bibliography does not indicate an exhaustive knowledge of the literature of the subject as we fail to find Wm. Palmer's 'Avifauna of the Pribilof Islands' (Fur Seal Report, 1899), nor W. Stone's 'Molting of Birds' (Proc. Acad. Nat. Sci. Phila., 1896).

**Ridgway, R.** A New Pigeon from Jamaica. (Proc. Biol. Soc. Wash., XXVIII, pp. 177-178, Nov. 29, 1915.) — *Chloroenas inornata exigua*.

**Ridgway, R.** A New Pigeon from Chiriqui, Panama. (*Ibid.*, pp. 139-140, June 29, 1915.) — *Enenas chiriquensis*.

**Miller, L. H.** A Review of the Species *Pavo californicus*. (Univ. Cal. Publ., Bull. Dept. Geol., IX, No. 7, pp. 89-96, 1916.)

**Miller, L. H.** Two Vulturid Raptors from the Pleistocene of Rancho La Brea. (*Ibid.*, No. 9, pp. 105-109, 1916.) — *Neophrontops americanus* (p. 106) and *Neogyps errans* (p. 108), genera and species new.

**Young, R. T.** Some Experiments on Protective Coloration. (Jour. Exper. Zool. XX, pp. 457-504, 1916.) — Practical experiments on captive birds. Dr. Young concludes that (1) protective resemblance is effective in protecting motionless animals from attack by caged birds and (2) that stillness is probably a more important factor than color in protecting animals from foes.

**Mearns, E. A.** Description of a New Subspecies of the American Least Tern. (Proc. Biol. Soc. Wash., XXIX, pp. 71-72, April 4, 1916.) — *Sterna antillarum browni* (p. 71), San Diego Co., Cal.

**Hellmayr, C. E.** Additions to the Avifauna of Timor. (Nov. Zool. XXIII, pp. 96-111.) [In German.]

**Mottram, J. C.** The Distribution of Secondary Sexual Characters amongst Birds with Relation to their Liability to the Attack of Enemies. (Proc. Zool. Soc. London, 1915, pp. 663-678.) — Endeavors to demonstrate a correlation between extra sexual dimorphism and decrease in vulnerability to enemies. Another paper by the same author, which follows this, deals with pattern blending in animals with reference to obliterative shading and concealment of outline.

**Moulton, J. C.** Birds taken on the Batu Lawi Expedition. (Jour. Straits Branch, Royal Asiat. Soc. No. 63, pp. 74-77, 1912.) — Thirty species.

**Van Someren, V. G. L.** Rearing and Taming Wild Birds. (Jour. East Afr. and Uganda Nat. Hist. Soc. V, pp. 19-23, 1916.)

**Roberts, Austin.** A New Siskin from South Africa. (Ann. Transv. Mus. V, No. 3. Suppl. 1 page unnumbered, 1915.) — *Spinus symonsi*, Sangabetu Valley, Basutoland.



**Vidal, L. M.** On a supposed Archæopteryx from Spanish Guinea. (Bol. R. Soc. Españ. Hist. Nat. XVI, No. 2. [In Spanish.]

**Rössler, E.** Contribution to the Ornithology of South Dalmatia. (Glasnik hrvatskoga Prirodoslovnoga Društva. XXVII, pp. 129-152, 1915.) [In German.]

**Angelini, G.** Note on *Lanius senator badius* Hartl. (Bol. Soc. Zool. Ital. ser. III, No. III, 1915.) [In Italian.]

**Angelini, G.** Anomalies in the Plumage of *Miliaria calandra*. (*Ibid.*) — A case of abrasion of the barbules. [In Italian.]

**Lepri, G.** The *Paroaria humberti* Angelini. (*Ibid.*) — Colored plate. [In Italian.]

**Chigi Francesco.** *Passer domesticus* and its Forms. (*Ibid.*) [In Italian.]

**Salvadori, T.** A New Species of the Genus *Dryonastes*. (Ann. Mus. Civ. Stor. Nat. Genova, ser. 3, vol. VI, 1914.) — *D. propinquus* (p. 6) Tenasserim. [In Italian.]

**Salvadori, T.** On a Small Collection of Birds from Benadir. (*Ibid.*) [In Italian.]

**Alvarado, R.** A New Species of Cardinal. (Bol. Direc. Estud. Biolog. Mexico., I, No. 3, 1916.) — *C. herrerae* (p. 284), Santa Rosa, an abnormal specimen with yellow crest and spots on the breast. [In Spanish.]

**Doello-Jurado, M.** Notes on Some Birds of Buenos Aires. (Physis II, No. 9, 1915.) — *Dendrocopus mixtus* and *Agelaius thilius*. [In Spanish.]

**Dabbene, Roberto.** A Supposed New Subspecies of *Neophlæotomus schulzi* Cab. (Physis II, No. 10, 1916.) — *Neophlæotomus schulzi major* (p. 167), Resistencia, Chaco. Austral. [In Spanish.]

**Piguet, E.** Birds of Colombia. (Mem. Soc. Sci. Nat. de Neuchâtel V, 1914.) — List of 59 species from Antioquia. [In French.]

**Stanwood, C. J.** Bird Architecture. (Country Life in America, April, 1916), and A Bird Craftsman (*Ibid.* March, 1916.)

**Beebe, C. W.** Review of the Genus *Gennæus*. (Zoologia, Vol. I, No. 17, Sept., 1914.)

**Crandall, L. S.** Notes on Costa Rican Birds. (*Ibid.* no. 18, Sept., 1914.)

**Cherrie, G. K.** Stories of South American Birds. (American Museum Journal, XVI, No. 4, April, 1916.)

**Publications Received.**—**Bangs, Outram.** (1) A Collection of Birds from the Cayman Islands. (Bull. Mus. Comp. Zool., LX, No. 7, March, 1916.) (2) The Smaller Mockingbird of the Northern Bahamas. (Proc. N. E. Zool. Club, VI, p. 23, March 29, 1916.) (3) The American Forms of *Gallinula chloropus* (Linn.) (*Ibid.* V, pp. 93-99, May 17, 1915.)

**Brooks, W. Sprague.** Notes on Birds from East Siberia and Arctic Alaska. (Bull. Mus. Comp. Zool., LIX, No. 5. Sept., 1915.)

**Chapin, James P.** The Pennant-Winged Nightjar of Africa and its Migration. (Bull. Amer. Mus. Nat. Hist., XXXV, Art. X, pp. 73-81. April 12, 1916.)

**Cherrie**, George K. Some apparently undescribed Birds from the Collection of the Roosevelt South American Expedition. (Bull. Amer. Mus. Nat. Hist., XXXV, Art. XVII, pp. 183-190. May 20, 1916.)

**Clarke**, Wm. Eagle. The Wren of St. Kilda: Its Status, Plumages, and Habits. (The Scottish Naturalist, October, 1915.)

**Forbush**, Edward Howe. (1) The Domestic Cat. Mass. State Board Agr., Economic Biology — Bull. No. 2, pp. 1-112, pl. I-XX. Boston, 1916. (2) Eighth Ann. Report of the State Ornithologist, For the Year 1915 (Mass. State Board of Agr., 63d Ann. Rept. Dec. 8, 1915.)

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## CORRESPONDENCE.

### The Significance of the Osteological Characters of the Chionides.

EDITOR OF 'THE AUK,'

Dear Sir:—

My attention has been called to the very excellent and comprehensive article by Dr. Percy R. Lowe on "Studies on the Charadriiformes.— III. Notes in Relation to the Systematic Position of the Sheath-bills (Chionidæ)," which appeared in 'The Ibis' of last January (1916); I have also read 'The Auk's' comments thereon and citation therefrom (April, 1916, p. 220).

Since reading Doctor Lowe's article, I have gone over the osteological material representing the Sheath-bills in the collection of the United States National Museum, and compared the skull and other bones of several of these birds with the corresponding parts of the skeleton in the fowls, pigeons, plovers, oyster-catchers, and their allies near and remote. So far as I am personally concerned, I find little or nothing in the strictures made by Doctor Lowe in his above cited contribution, reproduced in the last

April 'Auk,' upon my careful work on the osteology of all these birds — published nearly a quarter of a century ago — which in any way induces me to change my opinion. He further states (*loc. cit.* 153): "In its osteological features the Sheath-bill presents certain resemblances to the Oystercatcher," — a fact that I stated in 'The Auk' over twenty-three years ago, but which Doctor Lowe seems to have overlooked. That my present belief is that the pigeon and fowl *resemblances*, plainly seen in the skull of a Sheath-bill, are, in a way, resemblances only, is amply substantiated in a much more recent article of mine, which my critic likewise seems to have entirely overlooked in his *Chionis* contribution, and which 'The Auk' ignored when it came to republish his comments. I refer to my article on "An Arrangement of the Families and the Higher Groups of Birds," which appeared in 'The American Naturalist' for November–December, 1904 (pp. 833–856), and in which I place the Suborder Chionides between the Longipennes and the Charadriiformes, where I most emphatically take it they belong.

Doctor Lowe, in the course of his argument, refers to Marsh and his genus *Palæotringa*, — a form that probably had no more *Tringa* in it than it had osteological characters of a good many other very different kinds of Water Birds. But it would be idle to go into that subject here; and I would refer Doctor Lowe to my memoir "Fossil Birds in the Marsh Collection," published by Yale University only last year, for a full discussion of Marsh's types. This paper has over 150 figures on plates, illustrating Marsh's "types" of fossil birds.

In closing I would say that it is extremely likely that, at this writing, Doctor Lowe and I hold opinions on the relationships of the Sheath-bills to other birds that would be practically very much in agreement; and I trust that, in the future, he will do me the justice to cite my most recent opinions in all cases having to do with avian taxonomy. Probably some of my papers on this subject — and there are several hundreds of them — are not readily accessible to him, in which case I will be glad to bring their contents before him.

Faithfully yours,

R. W. SHUFELDT.

Washington, D. C., May, 1916.

## NOTES AND NEWS.

In the death of Prof. Wells W. Cooke on March 30, 1916, the American Ornithologists' Union has sustained a great loss. He died at his home in Washington, D. C., from pneumonia having been ill for only eight days.

Prof. Cooke was one of the earliest members of the Union, having been elected a Fellow in 1884. He was born January 25, 1858, in Massachusetts, son of Rev. Elisha W. Cooke, but moved with his parents at an early age to Ripon, Wis., where he was educated.

For several years he was connected with the Indian Service in Minnesota and Indian Territory and then in 1886 was chosen professor of Agriculture at the University of Vermont, and director of the university experiment station. From 1893-1900 he was professor of agriculture at the college at Fort Collins, Colo., and on July 1, 1901, was appointed on the staff of the U. S. Biological Survey.

He became interested in birds at an early age and almost from the beginning of his studies he directed his attention primarily to bird migration, eventually becoming our leading authority on this subject.

As early as the winter of 1881-2 Prof. Cooke solicited the coöperation of other observers in a comprehensive study of bird migration in the Mississippi Valley and for two years the results of their work were published in the 'Ornithologist and Oölogist.' When the American Ornithologists' Union was organized in 1883, a committee was appointed to coöperate with Prof. Cooke in extending this investigation throughout North America and he became superintendent of the Mississippi Valley division. His work in this region formed the basis of one of the first extensive publications of the Biological Survey which later took over the migration investigations. Since Prof. Cooke's connection with the Survey he has had personal supervision of this work and his many valuable publications based upon the records of the Survey are familiar to all ornithologists. His activities however, were not limited to this field, and the work that he has accomplished in mapping out the ranges of North American birds and in compiling a voluminous card index to published records of occurrences are of equal importance, while his 'Birds of Colorado' and numerous other papers stand as evidence of his unusual activity and his ability to accomplish results.

Prof. Cooke was a great lover of outdoor life and was a leading spirit in the District of Columbia Audubon Society and in all local field excursions for the study of nature. He had a delightful personality — generous and unassuming and his loss will be felt by bird students in all parts of the



country who turned to him for aid as well as by those who profited from his published papers. At the next meeting of the Union a memorial address upon Prof. Cooke will be delivered by Dr. T. S. Palmer, which will later appear in 'The Auk.' — W. S.

SVEN MAGNUS GRONBERGER, of the Library staff of the Smithsonian Institution, an Associate of the Union, died at Georgetown University Hospital, Washington, on April 24, 1916, after an illness of about three weeks. Dr. Gronberger was born at Norrköping, Sweden, August 19, 1866, and graduated in 1884 from the gymnasium of Norrköping, an historic city on the Baltic 75 miles south of Stockholm. After having spent some time in France and England, he removed in 1886 to New York City, where he studied law, and in 1907 came to Washington and entered the service of the Smithsonian. At the time of his death he had nearly completed a special course for the degree of Doctor of Philosophy at George Washington University, with topics Zoölogy and Geology, on which subjects he had published several papers in various journals. He was an accomplished linguist, knowing perfectly French and the Scandinavian tongues, including some Icelandic, and was versed also in the English, German and Italian languages and literatures, besides Latin and Greek. For a number of years he had made a special study of zoölogical parks as factors in the popularization of natural science. He was a member of the Biological Society of Washington, the Anthropological Society of Washington, the Audubon Society, the Society for the Advancement of Scandinavian Study, and the Writers' Club of Washington.

Dr. Gronberger was the author of several papers on ornithological subjects which have appeared in 'The Auk' and in 'Forest and Stream' notably a translation of Peter Kalm's account of the Passenger Pigeon. He had also prepared an exhaustive monograph on the "Palæarctic Birds of Greenland," being a review of the occurrence of European and Asiatic species in Greenland from the middle of the 18th century to the present time. Publication of this paper is still pending.

JOSEPH PARKER NORRIS, an Associate of the American Ornithologists' Union, 1886-1904, and a widely known oölogist, died at his home in Philadelphia on March 17, 1916.

Mr. Norris was born in Philadelphia, November 3, 1847, and was prominent in the business and social circles of the city. From boyhood he had been interested in the study of birds and their eggs and in 1885 he began the formation of a comprehensive collection of North American birds' eggs which, as the Norris collection, is now known to oölogists throughout the country and is one of the largest collections of its kind in America. For many years Mr. Norris took an active interest in developing this collection, assisted by his eldest son, J. Parker Norris Jr., its present

owner. In January, 1886, Mr. Norris became one of the editors of the 'Ornithologist and Oölogist,' and continued in that capacity until the magazine suspended publication in 1893. During this time he contributed a number of articles to its columns while his active interest and support were largely responsible for its success. He contributed a number of articles to 'The Country Gentleman,' (1863-67) and wrote the introduction to Davie's 'Nests and Eggs of North American Birds' (1889). In his writings he pointed out many errors of the early authors, notably in the number of eggs of the Raptorial. Besides his other interests Mr. Norris was greatly interested in Shakespeariana and was author of a work on 'The Portraits of Shakespeare' (1885.) — W. S.

DR. FRANK M. CHAPMAN and Mr. Geo. K. Cherrie left New York on May 6, 1916, for Ecuador to procure materials for a 'Paramo group' for the American Museum representing bird life on the upper slopes of Chimborazo. Dr. Chapman expects to meet Mr. Leo E. Miller in Argentina and there secure specimens for a companion 'Pampas group.' On the way he will investigate the bird life of the Urubamba Valley, Peru, and later visit the Museums at Santiago, Buenos Aires, Sao Paulo and Rio de Janeiro for the purpose of establishing closer relations with the American Museum.

Mr. Cherrie after leaving Dr. Chapman will start field work with the Roosevelt Expedition in the marshes of Paraguay.

MR. HARRY S. SWARTH, for the past three years Zoölogist at the Los Angeles Museum of History, Science and Art, has rejoined the staff of the California Museum of Vertebrate Zoölogy, with which institution he had already been affiliated from 1908 to 1913. Mr. Swarth resumes the duties of Curator of Birds, which involve not only the care of the extensive collections of birds in the Museum of Vertebrate Zoölogy, but also enquiry into the systematic status of the lesser worked western bird groups.

MR. FRANCIS HARPER, has joined the staff of the Biological Survey of the U. S. Department of Agriculture.